

# Global Health and Volunteering Beyond Borders

A Guide for Healthcare  
Professionals

Mildred M. G. Olivier  
Clarisse C. Croteau-Chonka  
*Editors*

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*This book is dedicated to Clarisse  
C. Croteau-Chonka, Ph.D., for her  
friendship, kindness, and endless support.  
Your selflessness will always be remembered.  
You have left fingerprints of grace on our  
lives. You shan't be forgotten.*

Love Always – MO



# Foreword

Over the last century, the history of medicine has been one of steady improvement in clinical outcomes. Through the work of clinicians and researchers alike, many diseases have been reclassified from the often-fatal rubric to the eminently survivable one. As an infectious disease specialist working in a large US teaching hospital, I have been fortunate to witness such reclassification several times over the past three decades. But moving between Harvard and Haiti—and, now, settings such as rural Rwanda, Sierra Leone, and Navajo Nation—permitted a personal glimpse of what it meant to live in a clinical desert where the fruits of science were absent or unevenly shared. The transformation of people dying of AIDS into people living with HIV, for example, only happened for those with access to the staff, stuff, space, and systems of modern medical care. If the AIDS pandemic had a height, and then a decline, it is because health professionals, activists, and policy-makers insisted on the integration of prevention and care for everyone in need. As this rich volume makes clear, irrigating the clinical desert, whether in rural Haiti or poor neighborhoods of Boston, demands diverse teams of clinicians but also managers, logisticians, and dedicated implementers, prepared to work in global health and motivated to deliver on the promise of health equity.



Dr. Paul Farmer is a recognized authority on global health. His focus is on providing quality healthcare to people in low resource areas. Along with his colleagues in the US and internationally, Dr. Farmer has developed community-based strategies for the delivery of healthcare which respects the needs and concerns of patients. He has conducted research and written extensively on health and human rights.

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# Preface

*The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.* – Martin Luther King Jr.

Sometimes the best intentions are not enough. Sometimes even the latest knowledge and most advanced skills are not enough. Sometimes a physician can come from abroad, motivated by a strong desire to do good, and unintentionally make things worse. It does not have to be that way.

This book is a resource to assist healthcare professionals who want to ease suffering, save lives, and promote health equity around the world. I called on many highly knowledgeable and experienced colleagues to contribute chapters. Each chapter provides information about its author(s) and an inspiring quote. The authors are from diverse backgrounds, many from the regions they address, who can provide a more authentic perspective than can be found in many other books on global health.

As a first-generation Haitian-American, I have had a unique vantage point on healthcare delivery in developing nations. I am a veteran of countless medical missions to Haiti and other Caribbean countries. Following the devastating 2010 earthquake in Haiti, I spent many days there responding to the medical crisis. I had a tremendous advantage over most volunteers: I know the country and the culture, I speak the language, and I count dear friends and colleagues among Haitian medical professionals there. After Haiti's catastrophe, scant hours after the first shocks, medical assistance arrived in waves. In the absence of an extant organization to coordinate and manage those waves, a sobering lesson was served up. Good intentions are not enough.

For as long as I can remember, I had a passion to be a doctor to help others. As the first child in a Haitian family, I never experienced undue pressure to be successful, but I was expected to make the most of opportunities that seldom exist in an impoverished nation. My parents moved to the Chicago area expecting to return one day to live again in Haiti. Instead I grew up in the Chicago area, excluding the 1 year we lived in Montreal, Canada. My undergraduate degree was in biology and psychology from Loyola University Chicago. I graduated from Chicago Medical



School and trained in ophthalmology at New York City's Harlem Hospital/Columbia University for my residency, where there was a large Haitian community. The experience galvanized my determination not only to work in the underserved community but also in the subspecialty of glaucoma, a blinding disease that disproportionately affects people of African descent.

During my residency, neuro-ophthalmologist Dr. John Mitchell often went to Haiti. It was an ideal time in my life to become involved, so once I had completed my glaucoma fellowship, I joined his medical missions. We went in collaboration with another Haitian ophthalmologist, Fritz Allen, MD, and a team of physician and non-physician volunteers to bring educational materials, give lectures, and treat patients. Local Haitian ophthalmologists were also team members, essential to help bridge inevitable differences.

Initially I had gone to Haiti as a glaucoma specialist, specifically to do glaucoma surgery. Before long I realized that something felt very wrong. I was operating then leaving the country. In contrast, at my Chicago area practice, I was always able to follow postsurgical patients meticulously. Should problems arise, I could respond quickly to a patient's needs and intervene with whatever specialized treatment might be required. This was not the case in Haiti where postsurgical follow-up could be impossible. Recognizing the difference, I could not reconcile myself to that lesser standard of care. Initially, I had thought something was better than nothing, but after a while, I was no longer sure it was true in all situations.

I also realized that we were overlooking a crucial opportunity. By focusing on treatment alone, we were helping far fewer people than if we broadened our mission. We could easily incorporate transferring our specialized skills to resident professionals who could then carry on long after we were gone. We had been missing "sustainability," the opportunity for medical care to continue beyond an individual doctor's presence and the immediate medical intervention itself.

Traditionally, when asked to consult on a difficult presentation, a specialist might simply take it over. In support of sustainability, I learned to say, "I know this is a hard case. I'm happy to have you observe me treating this patient, but I'm going to teach you how to do the rest of these cases." I followed up in subsequent missions by bringing other specialists with me and demonstrating different procedures.

It was not until Haiti was in the international spotlight after the 2010 earthquake that I saw how the different international health professionals who came to Haiti had different ways of helping. It was a devastating experience for the Haitian people, but it heightened the world's awareness of the country and offered an opportunity for medicine in Haiti to move forward. The response to the earthquake could help Haiti's healthcare workers to enhance basic skills, to further continuing medical education, and to establish infrastructure for the long term.

My vantage point as a member of one of the earliest medical response teams brought another discovery. The most pressing need was not for my skills as an ophthalmic surgeon. Rather there was an acute demand for medical coordination and management for specialized administrative work. I was more valuable as a critical go-between for the legions of medical people coming in from all over the world.

The place I could accomplish the most was a hospital focused on an underserved community near Port-au-Prince.

The hospital was in urgent need of additive administrative assistance. There were volunteers who spoke different languages, who entered data differently in medical charts. Initially, there was no way to determine which volunteers were physicians and which were nurses or medics. The Haitian hospital administrator on the scene did not speak enough English to orchestrate the onslaught of helpers. The situation required me to shift gears and respond as conditions demanded. At one point, I found myself negotiating for supplies and helping to find food and clothing for children orphaned by the disaster. My Haitian colleagues, many of whom had been up for many days, separated from their families and homes, were dedicated to doing whatever they could despite their own stresses and unknowns. I decided to go to the earthquake zone after I received a distressing email from the president of the medical society asking me not to think about a decision to come but to just come and help. I boarded the next humanitarian flight from Chicago via United Airlines with Dr. Serge Pierre-Louis (a Haitian neurologist) and Astrid Januszkiewicz, RN (an ophthalmic nurse), who had gone to Haiti with me on many previous missions in Milot with CRUDEM at Sacre Coeur Hospital (Fig. 1 and 2).

It was a difficult period and everyone was in a state of emotional trauma. Subsequent earthquakes were a constant threat. In the midst of all the confusion, some arriving international medical teams from countries that receive aid asked, “How can we help you?” In contrast some of those arriving from the USA and other highly resourced countries came on the scene saying, “Here we are! Move out of the way!”

In one instance a combination of language and usage vagaries nearly resulted in a serious blunder. A recommendation had been made to replace the Haitian trauma department chief with an American physician. I had thought that the English translation was clear to the Haitian administrators, but they had not understood there would be a change in command in their hospital. There was a definite misunder-

**Fig. 1** Editor with Dr. Serge Pierre-Louis, and Astrid Januszkiewicz, RN



**Fig. 2** Astrid Januszkiewicz, RN, Rosite Feteau Merentie, RN, Serge Pierre-Louis, MD and Mildred MG Olivier, MD



standing. Though it seemed that action had been agreed upon by all, to be on the safe side, I asked the Haitians again, “Do you really want them to take over as chair of the department? Is that what you want?” The Haitians replied in dismay, “Oh, no, no, no, no.” It quickly became evident that bridging the cultural divide was a priority during the crisis that came after the earthquake. On reflection, I think I brought a heightened level of respect among the outsiders for the Haitian physicians, administrators, and people.

This was a culmination of all of the skills I had acquired over the years. I knew now why they were all important. My parents had been my mentors and shown me how they helped others come to the USA. Now I was back in their country, using my cultural connection to try to make my own contribution. It was not so different from what I was doing in my community back home, but the circumstances were much more challenging.

Following the earthquake, I was confronted by the unfortunate phenomenon of “volunteerism versus voyeurism.” I saw too many who came to help beat their chests in pride because of how many people they had saved. During the acute phase, help was much needed, but the population became accustomed to having free care, undercutting the livelihood of local providers. Instead of returning to their local healthcare systems, patients remained with response missions offering care for free. As the patients stopped coming, Haitian hospitals had to close, not to be replaced when the medical assistance from abroad ceased. In the long run, what began as help cost many Haitians their access to care. Sometimes in disasters of that magnitude and in the absence of any long-term vision, a better way to help is to stay home and send money or to provide long-distance support via channels that technology makes possible.

As an ophthalmologist one would think that this specialty would not be needed after an earthquake, but many individuals damaged their glasses and had difficulty seeing, and there was a significant amount of eye trauma. I am proud to say that the American Academy of Ophthalmology (AAO) was represented in Haiti. The AAO set up a task force under the direction of Michael Brennan, MD (Past President of

the AAO), who has traveled the world networking with organizations and individuals with expertise in the different specialties of medicine and disaster relief. He has also advocated for leadership development in countries to ensure that the next generation of physicians has the vision for the future of building capacity for healthcare delivery.

Around the time of the earthquake, I had been asked to become more involved in global topics at my medical school. I accepted the appointment as Assistant Dean for Global Health and Diversity. That made me think again about sustainability and roles of healthcare professionals when they travel to other countries. I began looking for books about global health. Despite much searching, I did not find books written by those who came from areas of high need. Consequently, I set out to find the voices of people with firsthand experience in the realities of their regions who could assist healthcare workers coming in from high-resource countries.

In each of the book's chapters, you will learn about the individuals who contributed their expertise and information. I knew early on that I needed an overarching perspective, and I could think of no one better than Drs. Vivian Yin and Hunter Cherwek. They explain the importance of building capacity and how vital it is to work with local medical chapters. They offer suggestions about how to procure equipment, a difficult task in some regions. Focus on some of those challenging areas is provided by Drs. Michel Dodard, Sidney Gicheru, Ricardo Senno, Hector Resgado-Flores, Alan Robin, and Ridwan Shabsigh after an overview is given by Drs. Sarwat Salim and Balamurali K. Ambati. They discuss their work to improve healthcare through continuing medical education and acquiring resources. In many areas manpower is an ongoing problem and so exchange of ideas is welcomed.

Each global region offers rewards and challenges. Some of the ones most frequently visited are profiled in the book by physicians and experts who know the area's language and culture. They show how in medicine teaching someone to fish is infinitely more valuable than distributing meals. Transferred skills have an impact for years to come. Empowering a community and developing leadership opportunities are essential. The benefit from making a difference is not one-sided, as there are rewards to be garnered as well. Collaboration allows both the visitor and the local residents to learn skills or alternate approaches to medical problems. Travel may also afford practitioners an opportunity to see the natural progression of disease that may be rare in resource-rich countries.

Despite the fact that I had been going to Haiti for a long time, I had been struck by how different critical disaster relief is compared to sustainable medical care. (Drs. James James, Donald Donahue, and Ms. Alice O'Donnell address this in their chapter.) Disasters demonstrate the need for acute, situational coordination, but what about on an ongoing basis to ensure sustainability? Thankfully, since 2010 there has been a sea of change in global medicine and crisis response. There is less of the practice of physicians simply flying into under-resourced areas, doing surgery, and then departing for their home communities. Still, vast areas of the world remain devoid of resources and manpower required for large numbers of people without healthcare. Handling such humanitarian need from a public health and military perspective is addressed in the book by Drs. Alan Kimura and Michael Brennan.

Skills learned from a volunteer opportunity can significantly impact one's practice at home as well. Sometimes the challenging decisions one needs to make while on these trips can illuminate our own professional and ethical dilemmas. A visiting doctor may encounter complicated medical situations or draw on skills not practiced in years (see chapters by Dr. Agbor-Bayee and Drs. Michael and Virginia McCarthy). Cultural and religious aspects can also affect the community for which one volunteers, so it is vitally important to understand in advance how they relate to local healthcare (addressed by Drs. Mary Deeley and Juan Lorenzo Hinajosa).

Opportunities exist for medical students, residents, and fellows to expose themselves to the world of global health. Still the greater impact may be had by midcareer and older healthcare workers drawing on a lifetime of clinical skill and experience. Encounters with other healthcare professionals and the inter-professional environment are new concepts in the global health arena. They may be experienced as disruptive in traditional treatment models established in some cultures many centuries ago. As an example, Yi Zhang, an individual who embraces two cultures as an Asian-American woman, explains some of the customs of the Chinese culture and how these practices are incorporated into everyday life and medical care.

Dr. Carl Lawson addresses global health education from a public health perspective. The opportunity to work with and understand different cultures and backgrounds is extremely important. The global impact of acupuncture and traditional medicine is addressed by Dr. Alexia Croteau-Chonka since these therapies are practiced in many regions of the world and incorporated alongside or separate from medical practices from high-resource areas.

We learn from Dr. Celia Maxwell and undergraduate student Shaliya Sledge's chapter on infectious disease. They also provide an invaluable checklist to prepare for travel to another country. Passport, licenses, vaccines, and other essentials are listed for travelers. Adopting a respectful mindset ahead of the journey is also advised. Healthcare workers from abroad must always remember that they are going as guests to another country and need to be prepared for challenging conditions.

The role of telemedicine in an ever-changing world of social media, technology, and artificial intelligence is addressed by Dr. Olayele Adelakun and Robert Garcia. Dr. Olayele traveled to Haiti to work on a system for promoting exchange of ideas among hospitals. The project was piloted with support from Digicel through DePaul University and Rosalind Franklin University of Medicine and Science's Global Health Department then under the direction of Ines Bardella, MD. Even in low-resource areas, many have access to cell phones, greatly expanding opportunities for communication. Casimir Lorenc, a fourth-year medical student who traveled extensively doing missions, wrote about organizations in the international world. He explains the roles of governmental, nongovernmental, and other resources available when traveling for healthcare.

As an ophthalmologist, I had to include at least one chapter on my specialty. Dr. Bruce Spivey, past Executive Vice President of the American Academy of Ophthalmology, is an ophthalmologist long involved in global medicine and still

travels to many global destinations. Dr. Spivey has added information regarding organizations dedicated to the field of ophthalmology. Drs. Assumpta Madu and Leeja Raju contributed a chapter on the most common ophthalmic conditions that confront people in different parts of the world. Refractive error (the need for eye glasses) is one of the most important conditions that an eye physician can impact. As a glaucoma specialist, often I am confronted not only abroad but also in the USA in combating one of the leading causes of blindness among people of African descent and which becomes more common as individuals get older. Vision loss from glaucoma can be preventable, but resources, drugs, and education on prevention and the disease often do not reach the very individuals in need. I only wish I had enough time to write about glaucoma, but that might need to be another book.

While volunteering in new places is delightful, I find returning to familiar ones the most rewarding. I have made global health trips for over 25 years and have formed many friendships and collegial relationships. Travel has allowed me to understand my culture from many different perspectives and broaden my appreciation of my own heritage through the eyes of the individuals I have been lucky enough to serve. Patients are often so grateful for what we take for granted. I have learned much from patients and colleagues in the areas I have visited. I have been able to bring back to practice some of their skills in the USA when I am in low-resource communities. My travels continue to remind me why I chose to become a physician. It has always been to help people. The journeys enrich my life and allow me to grow spiritually.

I hope you will find this book to be a good resource and an engaging read. It comes from experienced individuals who continue to give of themselves to many who are in need. This is part of the shifting paradigm of how we interact with our global partners. Each of us learns from the other as we work together to elevate the quality of care that we give others. We strive so that someday we may eliminate the disparities in healthcare that exist here in the USA and abroad.

*When you learn, teach. When you get, give.* – Maya Angelou



# Acknowledgments

I want to thank everyone who contributed time, energy, and expertise to this overview of global health. We offer it as a valuable resource for building partnerships and collaborations with host countries. I have learned as much or more from the people where I have worked as they have from my opportunity to transfer skills. As a result I see the world through a different kaleidoscope with a variety of diverse ideas for bringing help, supplies, and medical interventions to those who need them most. I have been able to intervene successfully on a global level with some ocular conditions. With others we still have many obstacles to tackle. Most of my work has been in the ophthalmic world. I thank the many individuals who have given me supplies and packed up boxes with me and the ophthalmic team led by Peter Kelly, MD, who allowed me to be adopted into their service group. As an ophthalmologist, I strive to replace myopic tendencies and so expand our reach.

I must thank my collaborator and friend, Dr. Clarisse C. Croteau-Chonka, for her many hours, phone calls, reminders, and dedication to the cause. She pushed me and others to get the information we needed to make this work of love a success, and for that I am truly grateful.

I hope the book also shows others who cannot go abroad how they can help locally and abroad without ever leaving their communities. We in the healthcare field are all capable of making a profound, healing difference on the world to make it a better place.

# Contents

<b>1</b>	<b>An Overview of Global Health for the Healthcare Professional. . . . .</b>	<b>1</b>
	Vivian T. Yin and David Hunter Cherwek	
<b>2</b>	<b>Global Health Education . . . . .</b>	<b>19</b>
	Carl Lawson	
<b>3</b>	<b>Perspectives on Global Health and Volunteerism for Healthcare Providers: The Importance of Preparation, Identification and Management of Infectious Diseases, and Mitigation of Other Risks . . . . .</b>	<b>35</b>
	Celia J. Maxwell and Shaliyah Sledge	
<b>4</b>	<b>What Could Go Wrong?: Providing a Moral Grounding to the Ethics of Short-Term Medicine. . . . .</b>	<b>51</b>
	Michael McCarthy and Virginia E. McCarthy	
<b>5</b>	<b>Religious Foundations for Global Health Missions . . . . .</b>	<b>63</b>
	Mary Katharine Deeley and Juan-Lorenzo Hinojosa	
<b>6</b>	<b>Professionalism in Global Health . . . . .</b>	<b>73</b>
	William Agbor-Baiyee	
<b>7</b>	<b>Technical Factors in Telemedicine Adoption in Extreme Resource-Poor Countries . . . . .</b>	<b>83</b>
	Olayele Adelakun and Robert Garcia	
<b>8</b>	<b>Encountering Traditional Medicine in Global Health Service . . . . .</b>	<b>103</b>
	Alexia C. Croteau-Chonka	
<b>9</b>	<b>Humanitarian Relief: A Public Health View . . . . .</b>	<b>119</b>
	Alan E. Kimura	
<b>10</b>	<b>Military Medicine and Global Health: A Core Competency . . . . .</b>	<b>137</b>
	Michael W. Brennan	



**11 The Role of Professional Societies in Achieving Global Health Security: Validating a Discipline of Disaster Medicine and Public Health** ..... 153  
James J. James, Alice B. O’Donnell, and Donald A. Donahue

**12 Global Health Organizations: What They Are and How They Work** ..... 173  
Casimir Lorenc

**13 Cultural Sensitivity in Global Outreach** ..... 181  
Sarwat Salim and Balamurali K. Ambati

**14 Country Spotlight: China** ..... 187  
Yi Zhang

**15 Country Spotlight: India** ..... 195  
Alan L. Robin

**16 Recollections of My International Experiences** ..... 199  
Marilyn T. Miller

**17 Regional Spotlight: Africa** ..... 203  
Sidney K. Gicheru

**18 Regional Spotlight: Eastern Mediterranean** ..... 215  
Ridwan Shabsigh

**19 Regional Spotlight: Caribbean** ..... 223  
Michel Dodard

**20 Cultural Considerations for Healthcare Treatment of Latinos in the United States** ..... 231  
Hector Rasgado-Flores, Yovanna Pomarico, Cecilia P. Rasgado, and Patricia Sumoza

**21 Similarities Greater Than Differences: A Doctor’s Perspective** ..... 243  
Ricardo G. Senno

**22 International Foundations for Ophthalmology** ..... 247  
Bruce Spivey

**23 Global Ophthalmology** ..... 253  
Leela Raju, Assumpta A. Madu, and Mildred M. G. Olivier

**24 Ophthalmology: India** ..... 259  
Alan L. Robin

**25 Coda** ..... 265  
Clarisse C. Croteau-Chonka

**Correction to: Chapter 8 Encountering Traditional Medicine in Global Health Service** ..... C1

**International Eye Organizations: A Select List** ..... 271

**Index** ..... 295

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# Chapter 1

## An Overview of Global Health for the Healthcare Professional



Vivian T. Yin and David Hunter Cherwek

*Global health is an attitude. It is a way of looking at the world. It is about the universal nature of our human predicament. It is a statement about our commitment to health as a fundamental quality of liberty and equity.* – Richard Horton, The Lancet

### Introduction

As the world continues to become more connected by technology, commerce, and international travel, it is critical for all healthcare professionals to understand the growing role of global health and to learn from this dynamic field. The definition of “global health” continues to evolve as new challenges, regulations, and innovations are constantly emerging which may add new dimensions (and solutions) to already complex health and social issues around the world. Healthcare professionals with this interest may look for opportunities to study these issues formally in master’s degree or certificates in global health, to see how their research could impact global populations, and to work abroad on the ground. This chapter is designed to give a general overview of the key components of global health and the important aspects of this field to consider when looking at a practice and career in global health.

Fundamentally all those who pursue a career in healthcare want to “help people” and make a meaningful contribution to their field. Global health provides an incredible opportunity for each of these where the challenges of working in foreign (and potentially less resourced) systems are only surpassed by the rewards of

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helping the health of those people in greatest need. It is important before engaging in such work to have the self-awareness to pause and to ask first:

- What are my motivations and my expectations for this work?
- What are my talents and skills that will bring real value to the local system?
- Is this building on the local capacity (sustainable) and do I have an incremental plan for local sustainability and ownership?
- Have I defined the scope of this work and are these goals aligned with those of the partners or populations? Am I clear on their motivations and expectations?
- Have I researched this challenge enough to know the landscape, opportunities, potential partners, and risks to make a cost-effective impact?
- Do I have metrics and feedback systems in place to monitor and evaluate this work?

In each section, we will look to answer these questions with case studies and highlight the complexities of tackling global healthcare issues.

## Defining Success

In 2010, three healthcare workers were honored by Queen Elizabeth for the annual mission to provide eye care and surgery to financially disadvantaged people in the islands of Southeast Asia since 2005. The mission included 50 volunteers, doctors, nurses, and support staff. A total of 63 cataract surgeries and 87 minor surgeries were done, and 9000 pairs of glasses were distributed in 9 days. Furthermore, hundreds of personal vacation days were spent preparing and fundraising for the mission. Everyone affiliated with the mission was beaming with pride. How could this not be the very definition of success? There was recognition by the highest order of government and a large number of patients seen and surgery done. The mission has also grown in size from 27 volunteers to 50 over 5 years.

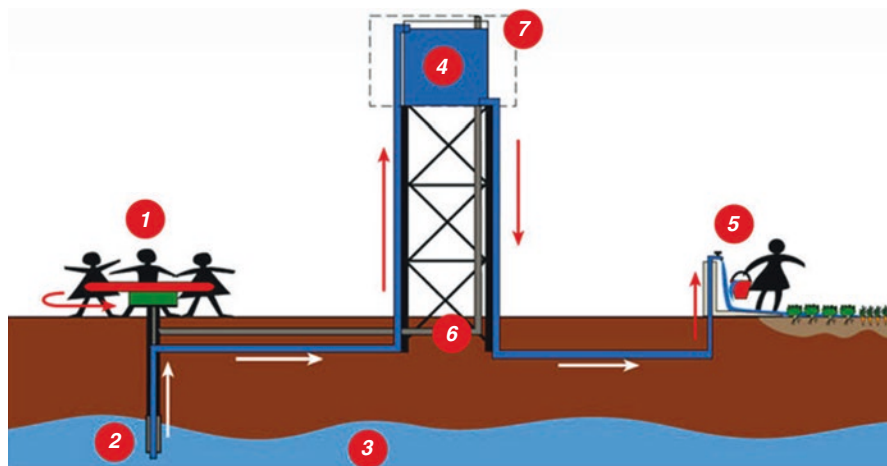
Historically, the focus has been on clinical volume and individual patient outcomes as measures of success for global health programs. This is reflected by the descriptive nature of published literature on medical mission [1]. The case discussion below is meant to challenge the definition of success, not to criticize the good intentions of the volunteers; however, good intentions don't always translate to positive impact for the local hospital or community. Let's consider two questions. First, was this assistance needed or wanted by the local hospital or community? Second, what was the impact of this mission to the local hospital, community, or the country?

In terms of need, this city (Bacolod) was one of the two major cities in the region of Negros that was excluded from a prevalence of blindness study due to its affluence [2]. While the team did work in the local teaching (public) hospital, there was no coordination to work with the resident physicians there. The local residents had their own clinics and operating room, while the Western doctors set up their own

theater in an unused portion of the hospital with equipment that was brought and left there just for the visiting doctors to use. Furthermore, 1 week after the 10-day mission, a larger international eye health NGO was conducting a program in the same city.

The 63 cataract surgeries were performed by 3 surgeons over 9 days, making it an average of 2.3 cases per surgeon per day. Meanwhile, cataract surgeons at Aravind Eye Care System (AECS) in India can perform upward of 80 surgeries per day with small incision cataract surgery with outcome equivalent to those published by the UK [3]. The estimated cost per cataract surgery at Aravind was between \$41.82 and \$125.02 [4]. Compare this to an estimated cost of \$11,606.17 per physician for an average medical mission, which is equivalent to \$552.67 per cataract. Furthermore, the presence of the Western doctors can undermine the influence of the local ophthalmology community and impact the financial sustainability of current health systems.

Another example of misalignment of intention and impact is the water project, PlayPump (Fig. 1.1a), in sub-Saharan Africa (SSA). Clean drinking water is unquestionably an important public health and global health agenda. As of 2014, there's still only 61% coverage for access to drinking water in SSA, which dip down to 40% in the poorest rural quintile [5]. The goal of PlayPump International Africa was to “bring the benefits of clean drinking water to 4,000 schools and communities in 10 countries in sub-Saharan Africa by 2010” [6]. Yet, many of the schools and communities that the PlayPump were meant to help were so upset with the project that a number of complaints were filed with local government and the public health office had to be called to intervene [6]. The media had called it “Troubled Water” [7]



**Fig. 1.1** PlayPump design showing the circular roundabout driving a conventional borehole pump driving underground water to the storage tank and with a faucet on the other end for drawing water. Showing difficulty for operation of the pump by village women due to the height and width of the roundabout. (Accessed from <http://www.playpumps.co.za/index.php/how-it-works/>)

and “Africa’s not-so-magic roundabout” [8]. The poor installation quality and design flaws aside, the local communities were not involved or given information about the project [6]. In some areas, PlayPump was installed on existing boreholes while removing operational and easier-to-use Afridev hand pumps, causing outrage by the local schools and communities [6].

The lack of local community, stakeholders, and government participation along the way leads to fixing a “problem” that wasn’t there. Perfectly functioning hand water pumps were being replaced with a PlayPump that the users did not prefer due to difficulty of use (Fig. 1.1). The involvement of local partners and stakeholders should include open discussion from the inception of the idea, brainstorming on clear definition of the problem, including possible barriers or contributing factors, to defining success. This can take the form of a combination of focus groups with local community and leaders, group discussion with local partners, and presentation of proposals to local government for feedback.

Defining success and goals for a global health program, it is important to set the indicators (metrics) for success with agreement from the stakeholders before planning details of the program. The goals and indicators decided upon should reflect impact to the local healthcare system and community. The PlayPump project focused on the number of pumps installed as the goal rather than using an impact measuring, such as number of gallons of clean drinking water provided. These same indicators will be used for evaluation of the program at interim and completion. The types of indicators commonly used in global health programs will be discussed later in the section “Evaluation and Adaptation.”

Finally, as part of the goal of the program, one should consider how the program builds on and expands current capacity. Building on current capacity involves more than just working with a local physician. Capacity to address is not only the clinical skill of the physician, nurses, and allied health workers but also the infrastructure, human resource and health system management, information technology, finance, marketing, and research and ultimately the ability of the local partner to expand its own capacity and help others.

## **Understanding the Complexity of Barrier to Access**

Once there’s an agreed upon program goal with the local partner(s), consideration should be given to the contributing factors and barriers in accessing care for the population at risk. Transportation to local healthcare facilities or hospitals can be difficult in low- and middle-income countries (LMIC) due to lack of or frank absence of roads or public transportation. This can be more pronounced within the lowest socioeconomic strata in these countries. Nepal, for example, is divided geographically into three regions, the Terai (the plains bordering India), the hills, and the mountains; with half of the population living in the mountain and hills [9]. There is 2.5 times (1322 vs. 523 persons per sq. miles) higher population density living in rural environment in Nepal compared to the world in 2015 [9]. For rural district of



Nepal, distance to the health facility was a barrier in accessing care at government hospital in 22% of the households sampled [10]. The association between physical distance to urban areas and access to health is not only seen in Nepal but also globally. Using OpenStreetMap, Google and the Demographic and Health Survey (DHS), sponsored by the United States Agency for International Development (USAID), strong collinear associations were found between accessibility to cities and indicator of human well-being [11].

One may expect the problem of distance to be rectified with assistance on transportation cost for patients in rural communities. Yet, the act of travelling to a health-care facility involves more than just the cost of a bus fare. The culture in some countries often requires an accompanying family member for patients seeking care. The indirect cost of time lost for unpaid wages, household, or personal activities, for the patient and accompanying family member, needs to be considered as well. Between out-of-pocket medical cost, transportation cost, and indirect cost of time lost, indirect cost of time lost accounted for 87% of total cost incurred by household when accessing care for childhood diarrhea illness in Kenya [12].

Another aspect to consider is the actual logistics of travelling to the healthcare facility. In Nepal, travel from the mountain or hill region can involve uneven passageway, to be taken on foot only, before reaching a paved road requiring additional hours of travel ahead. This is compounded with poor road conditions and lack of public transportation. For elderly patients, the path to a public road may be difficult without assistance. In some cases, providing physical assistance to carry patients down the mountains or hills is the key for these patients to access care.

On the other hand, fear for personal safety from armed robbery, sexual assault, and kidnapping was identified as a barrier for mothers seeking care for childhood pneumonia in Tanzania [13]. These are issues that cannot be resolved with simply providing a subsidy and sometimes require innovative solutions. Discussion, either formal or informal, with the local partners is paramount in the process. Even when the barriers seem to be the same, the answers may differ from region to region or even city to city.

It may be intuitive that culture can be a barrier to accessing care; however, thinking of the issue in this blanket term will not be useful in addressing it. Local culture is a complex interplay of the family unit, gender, belief systems, and likely others not yet defined.

It is easy to assume that once these barriers have been pointed out, they can be remedied with sensitivity to these issues when interacting with patients. One such scenario highlighting the culture difference from the Western world was a 21-year-old Bangladeshi girl who sought care for a kissing nevus, a congenital mole that involved both the upper and lower eyelids. She was considered “flawed” for marriage due to this and was brought by her uncle to see if the foreign visiting doctors could help. As the risk or benefit of surgery was explained to her through a hospital translator, it was made clear that the right to consent rested with her uncle and not her.

It is easy to see in this anecdote the social inequality of women being valued only in marriage and women’s lack of rights to their own healthcare decisions.

This congenital mole was only of importance now that the family was trying to get her married, even if this did not impact her visual health. Furthermore, the kissing nevus had been there since birth yet unaddressed for her whole life. What is not immediately apparent was that she was one of a handful of women seen that day in a screening clinic of close to 100 patients. Since girls are considered less important, they are brought to care later if at all.

The presence of gender inequality in access to care can be seen in both medical and surgical access to care. Compilation of nine studies and data from the Indian National Family Health Survey on immunization coverage after the national Pulse Polio Immunization (PPI) campaign in India still found significant lower coverage ratio of girls at 0.93–0.95 compared to boys [14]. This is despite the “extensive social mobilization, interdepartmental coordination, improved linkages between health workers and local communities, and organization of outreach immunization booths in the remote areas” in trying to address the gender gap [15]. The gender gap remained the same, while overall immunization coverage increased [14]. The birth order is also associated with likelihood of receiving immunization. Being a third-born girl to two prior older sister leads to 20% less (36.1% vs. 45.0%) immunization coverage compared to boys with two older sisters [14].

Similarly, the surgical coverage rate for cataracts is up to 1.7 times higher in male than females in a meta-analysis including China, India, Malawi, Nepal, and South Africa [16]. Despite global decrease in blindness between 1990 and 2010, women have a significantly higher age-standardized prevalence of blindness than men for all age groups and in all parts of the world [17]. Even though the age-standardized prevalence of blindness was higher in developing regions than high-income regions within LMIC, the gap was less in sub-Saharan Africa (1.11–1.13 times greater) than in South Asia (1.26 times greater) [17]. Among children, the cataract surgery utilization also significantly favors boys with the ratio in Asia at 1.6 times and Africa at 1.4 times [18].

Various strategies for community-based support have been utilized in an attempt to lessen this gender gap. India and Nepal both utilize female community health workers within a government-supported public health program to identify children with eye conditions. In India, the Anganwadi workers, females chosen from their local community, were motivated to help their own local community but were not effective at getting girls to healthcare service. Female community health volunteers in Lumbini, Nepal, were essential in getting girls to care but were only able to find a small number of children each month due to competing demands from other health initiatives [18].

Using school screening programs to capture girls with eye problems was unsuccessful in some countries such as Cambodia, where more boys attended school than girls due to the belief that “girls will do better household works than studying” [18]. However, in some regions of India, girls were well represented in schools as even children from “poor economic condition regardless of gender goes to school at least for food” [18].

In Eritrea, women’s empowerment driven by recent role as combatants during the war for independence was a key facilitating factor in access to care [19].

As women gain respect within the changing community, so does their voice increase in autonomy and healthcare access. These three examples illustrate the importance of adopting diversity in strategy to close the gender gap. Central to all three examples is the importance of women's role in society and empowerment in health equity. Having women as active members in society, in the workforce, and in education facilitated improved access to care for women and girls in these cases.

So far we have discussed the barriers that can be clearly defined – gender, infrastructure, and distance to healthcare facilities. Here, we examine the “softer” barriers. These are just as important but harder to define and study. It is difficult to define quality in healthcare, and it has been challenging even for those in Western academic medicine. There's no debate that quality is important; however, some argue that the expected level of quality in LMIC cannot be the same as developed countries as there's a lack of resources. This mentality can lead to lack of impact and sustainability of programs.

Quality of care provided at healthcare facility is a barrier to utilization of care. This was seen in rural Nepal where the number one reason for not accessing health service at government health facility was insufficient drugs (61%) at the facility [10]. Similarly, for maternal care in Eritrea, the number one barrier to access was poor quality [19]. Factors assumed to be of secondary importance in LMIC were identified as the primary barrier to utilizing care: lack of access to ultrasound, lack of sympathy from staff or poor treatment, long wait time, and crowdedness of the facility [19]. Moreover, women, both poor and non-poor, will bypass facilities and travel longer distances to attend facilities of higher quality [20].

Even the perception of poor quality, driven by rumors, can prevent utilization of available healthcare as seen in the Democratic Republic of Congo. Foreign aid from governments and nongovernment organization (NGOs) had provided free polio vaccine, vitamin A supplement for vision health, or insecticide-treated nets (ITN) for protection against malaria as national global health interventions. These were not utilized due to the perception that the free drugs or vaccine were of “bad quality” or “already expired” [21]. The “distrust towards the ITN...was strengthened when people received phone-calls from relative or friends aboard, telling them that the ITNs were not suitable for use” [21]. Robust health information dissemination at the hospital and community level can remedy the misinformation and distrust in order to improve service utilization [18, 19].

In some cases, no amount of education and campaigning can increase a culturally unacceptable intervention, even if there's evidence for efficacy of the intervention. Fink had postulated in 1986 that the transmission of human immunodeficiency virus (HIV) from women to men may be related to the inner mucosal lining of uncircumcised foreskin [22]. Since then, multiple studies have shown circumcision to be protective against HIV transmission in both heterosexual and homosexual men, with relative risk reduction of 72% and 20%, respectively [23]. This leads to the Joint United Nations Programme on HIV/AIDS (UNAIDS) adopting voluntary medical male circumcision (VMMC) as one of the recommended components for HIV control [24]. In the 12 Southern and Eastern African countries supported by the Centers for Disease Control and Prevention (CDC) through the President's

Emergency Plan for AIDS Relief (PEPFAR), the yearly rate of VMMC's increased from approximately 983,000 in 2013 to 1,173,000 in 2016 [25]. However, this success in scaling up VMMC's was not seen in Swaziland, where there's the highest prevalence of adults with HIV at 27.2%. Despite intense campaigning in 2011, only 11,000 men were circumcised, reaching only a quarter of the program goal [26]. Unlike other SSA countries, adult circumcision was not part of the local religious practice and some even "set circumcision as an unacceptable practice" [26]. In addition, some felt that the foreskin was part of their body and removal of it was "damaging the temple of the Lord," while others feel that they can't leave "body parts outside." It was also culturally unacceptable to the men to be abstinent for 4–6 weeks after the procedure, which was the recommended healing period. Some of these deep-rooted religious and culture beliefs are difficult to change with simple education or distribution of information. As such, some would argue that in these cases, the resources and efforts of the global community should have focused on safe sex practices like promoting condom use instead.

## **Program Planning: Alignment of Expectations**

The planning of a global health program starts with a bilateral assessment of the potential partners, understanding the mutual goals and expectations, and clearly aligning on a pathway and timeline. The priorities and responsibilities of both parties should be discussed and clearly stated, ideally in a written agreement or a Memorandum of Understanding (MoU) with regularly scheduled time points to review progress and set commitments. In an ever-changing and accelerating world, it is important to know that the partners (especially authorizing signatures) may change during a multiyear agreement, stressing the importance of regular communications in these relationships. Often the failure of a global health program or partnership was not the lack of effort, intention, or talent but rather being derailed. Thorough planning (especially with regard to budget, required approvals, and human resource commitments) and having the flexibility to pivot during changes in government or crises is essential for achieving the desired impact.

Background research and landscape analysis, using available data from the literature, local ministry of health, or World Health Organization (WHO), is often used to understand the magnitude of the problem. In the role of a healthcare provider, it is critical to understand what the local partner is seeking from you – for example, direct service delivery to patients, training of healthcare providers, or working with researchers on collaborative research. Additionally, when practicing medicine, a third set of expectations are added into the equation, those of the patient and often the family. It is critical that the patient understand the role of the foreign healthcare worker and their rights, and an official informed consent in local language is often recommended.

Regardless of the focus or scope of this work, it is essential to remember that you are a guest, and this is their "home" institution. A foreign healthcare worker or volunteer should respect what the hosts ask of you but also feel comfortable asking

critical questions regarding patient safety, local customs, and governing rules in medicine (e.g. local credentialing, practice patterns like reuse of single use items, and even medical malpractice). Spending time learning about local supply chain management/distributorships, in-country product registration, healthcare pricing, and domestic healthcare training system is always time well spent and will lead to more well-designed programs.

It is equally important for a healthcare practitioner to assess their skills and plan accordingly – especially if practicing direct patient or surgical care. Being outside of your normal environment will already make clinical care harder than usual, and sometimes the local partner may ask something of you that you can't deliver even in the best circumstance – don't be a hero. This is especially true in surgical care where you will often be faced with insufficient anesthesia (or ICU) support, lack of familiar instrumentation, and more advanced disease. Many surgical organizations recommend taking on the “easy, routine” cases first and possibly delay the more difficult cases for a second trip, a larger or more well-equipped team, or even someone with more experience. Many new tools are helping with the organization and safety of international surgical programs including telemedicine prescreening, surgical safety checklists, and informed consent. The “neglected stepchild of global health” is now receiving the attention and resources that it deserves [27, 28].

## Evaluation and Adaptation

The proper evaluation (and potential ongoing modifications) of a global health program is as important as all the preceding steps. It informs the local partners and funding agency with evidence of the success of the program, and even more valuable is knowing which components did not perform as expected. The goals set during program planning should be based on indicators that reflect components of the program. It can be either quantitative or qualitative but should have the following characteristics [29]:

1. Accurate measurement of the behavior or event of interest
2. Reliable with consistent measure by different observer
3. Precise
4. Measureable with quantifiable tools and methods
5. Provide measurements at time points that are relevant to program goals and activities
6. Programmatically important (linked to impact)

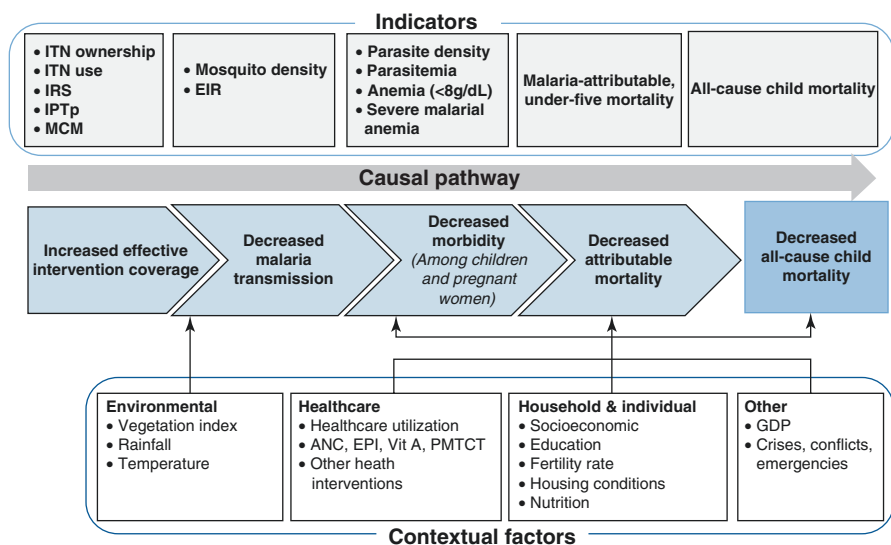
There are three general categories of indicators: input indicators, process indicators, and output/outcome indicators. Let's take malaria control in sub-Saharan Africa (SSA) as a case study to understand these indicators.

Roll Back Malaria (RBM) was a World Health Organization (WHO) initiative with partnership from the World Bank, United Nations Children's Fund (UNICEF), Department for International Development UK (DFID), and USAID. It was

launched in 1998 as a “loosely constructed partnership” with an agreed onset of priority interventions [30]. Four interventions were adopted by governments and NGOs for malaria control include two preventative and two treatment measures. For the prevention of malaria, insecticide-treated nets (ITN) and indoor residual spraying (IRS) were the mainstay. And for treatment, the focus was on treatment of pregnant women, termed intermittent preventative treatment (IPT), and rapid diagnosis and treatment of cases, termed malaria case management (MCM).

The *input indicators* measure the contributing factors for program success that precedes the start of intervention. For the program to decrease malaria morbidity and mortality in SSA, there needs to be participation and interests from key stakeholders and sufficient financial and human resources. Potential input for RBM could be having sufficient number of healthcare workers to implement the above interventions; as such, one input indicator may be having required number of healthcare volunteers trained before program implementation.

*Process indicators* measure the program’s intervention and immediate output. The indicators should measure what would be considered success for each step in the pathway to program goals. Developing strong process indicators, therefore, requires the pathway to be mapped from intervention to output, to outcome. The logical assumption is that with effective implementation of these interventions, there would be a decrease in malaria transmission, leading to decreased morbidity and mortality with fewer clinical cases, thereby decreasing mortality in children



**Fig. 1.2** Framework for assessing the impact of malaria control intervention. ANC antenatal care, EIR entomological inoculation rate, EPI extended program for immunization, ITN insecticide-treated net, IRS indoor residual spraying, IPT intermittent preventative treatment, GDP gross domestic product; MCM malaria case management, Vit vitamin, PMTCT prevention of mother-to-child transmission [31]

less than 5 years old (Fig. 1.2). The decrease in malaria mortality is the immediate output of the intervention with decrease in all childhood mortality as the *outcome indicator* that the program partners are seeking. The outcome indicator is also sometimes called the impact indicator to signify the ultimate outcome of interest for the program [31].

After the process is mapped out, each step can be examined with its own indicator. Looking at the first step in the pathway, one way to evaluate the implementation of ITN can be the proportion of household with ITN. More specifically, the number of ITN would depend on how many people reside in the house. Therefore, a more precise indicator should be proportion of household with at least one ITN per two people. Moreover, ownership does not necessarily indicate effective use. Thus, a separate indicator for ITN usage would be more representative of the effective implementation of this intervention. The measurement of this can be by survey or direct observation.

Having both of these indicators to evaluate the implementation of ITN can help identify where the program can be improved. Measuring the proportion of household with ITN ownership compared to proportion of household that slept under the ITN the previous night, it was found that the intervention was successfully distributed but not used. This leads to the discovery of the community's misconception on the quality and effectiveness of ITN in preventing malaria. As part of Phase 2 of the RBM program, recommendation was made to increase national responsibility in developing and implementing a comprehensive communication strategy with involvement of the private commercial sector instead of relying on districts for promotion, which may be seen as less authoritative [23].

The process indicators can also facilitate the evaluation of the intervention's ability to produce the desired downstream health effects. Continuing with the example of ITN, the assumption is that if the prevalence of malaria was decreased, the prevalence of anemia in children should also decrease. Yet, it was found that malnutrition (vitamin deficiency) contributes equally to childhood anemia in some regions of SSA receiving ITN [32]. Process indicators can help understand and uncover incorrect assumptions.

## Toward Sustainability

USAID had defined sustainability as “the ability of a *local system* to produce desired outcomes over time” [33]. Local system refers to governments, the private sector, universities, or individuals who jointly work to produce a particular development outcome. In other words, sustainable development means that, one day, NGOs or foreign government shouldn't be needed anymore. Discrete global health programs should strengthen the local system's ability to produce the desired outcome and to be adaptive when faced with changing environment. Consider a sustainable approach to each of the contributing factors (input for the system) for implementation of the intervention when proceeding. Even when working with a local system

that's completely reliant on external aide at the time, it is important to start the planning for transition of responsibilities in the future. The broad, non-exhaustive, categories to consider are finance, leadership, human resource, infrastructure, and communication/advocacy.

Many large-scale global health programs, such as RBM, depend on donor funding from governments and NGOs. The high level of international commitment financially has been one of the success factors for the RBM program [23]. However, planning for financial sustainability needs to consider strategies to move away from donor funding. The level of available donor dollars from government, corporate, and individuals has been historically unpredictable and is often influenced by global economy and political stability. One analysis of the financial sustainability of access to HIV service in Zambia concluded in 2015 that increase in private insurance scheme is needed rather than dependency on donor resources as a projected funding gap of \$334 million USD by 2020 was identified [34]. This is despite high governmental and international commitment to funding access to HIV treatment.

One success story of financial sustainability in global health is the Aravind Eye Care System (AECS), founded in 1976 by an Indian ophthalmologist, Dr. Venkataswamy, with the vision of bringing eye care to the masses – specifically “making cataract surgery as ubiquitous as McDonalds” [35]. Not only did it expand in infrastructure from one 11-bed hospitals to 12 hospitals and 65 vision centers; they have increased the number of paying patients from 8763 to 53,107 patients and with 73% of the paying patients having the more expansive surgery with phacoemulsification [36]. In order to decrease cost, thereby increasing the potential for financial self-sufficiency, AECS created Aurolab, a manufacturer of ophthalmic consumables, including implants for cataract surgery (intraocular lenses, IOL), sutures, blades, and ophthalmic drugs. In 2005, it expanded to include surgical instruments and equipment. Aurolab now exports to 130 countries worldwide, with focus on LMIC in Africa, Southeast Asia, and Central and Latin America, serving as additional revenue source for AECS [37]. This type of innovation was highlighted by Yang et al. [38] as an opportunity for achieving sustainability in global health.

Human resource continues to be a challenge for different global health program sustainability and scaling up [23, 39, 40]. This shortage is not solely in physicians and nurses but more importantly shortage in non-physician clinical officer, medical assistance, and community health workers. These are the field personnel carrying out large-scale global health interventions and needed in greater numbers. Training and staff retention often jeopardize the effectiveness or sustainability of the program. Standardization and innovative training methodology, such as distance learning, apprenticeship, and mentoring, are vital for quality and supply of healthcare workers to meet the demand. High staff turnover can be related to poor working condition, low pay and lack of training, inadequate resources and infrastructure for quality service provision, and lack of career advancement opportunities [32].

AECS has combated this problem with providing free technical education for girls from villages in return for a commitment to work in the Aravind system for 3 years.



These female healthcare workers are trained for different functions within the hospital, as counselor to patients, ophthalmic technicians, personal support workers, and physician and nursing assistants. The high retention and job satisfaction come from the chance for advancement within the system but also the option to work more independently at a vision center in their village if they were to be married and had to leave the city. With the reputation for high quality, healthcare workers who have trained and worked at AECS also become highly employable in other hospitals.

Another approach to overall sustainability of a program is through collaboration and partnership with other, often more established, organizations. This can increase cost-effectiveness on multiple aspects of the program through sharing of financial and human resources. Partner with programs that have overlapping objectives or target population. For example, RBM focuses on children and pregnancy women for two of their interventions. Linkage with Integrated Management of Childhood Illness (IMCI) and the Expanded Program on Immunization (EPI), both are WHO initiatives, can utilize the already-in-place infrastructure and human resources. As EPI healthcare workers administer vaccination for children, they can also identify and treat children with symptoms of malaria. Similarly, case manager for IMCI would be a resource to identify children and families lacking ITN or IRS utilization or educate family to dismiss the misconception about the danger of ITN or IRS.

The importance of local partners and commitment from governments to a global health program has been discussed throughout all of the sections. Not only does this shape the planning and implementation of the programs; it will catalyze the spread of awareness of the health problems that's being focused on. The strong partnership between WHO, World Bank, UNICEF, USAID, and international NGOs for the RBM program facilitated addressing the issue of taxes and tariff on ITNs. Prior to efforts of advocacy from the RBM partners, the high cost of ITNs was a "critical barrier to their widespread use" with taxes and tariff being the significant reason for the high cost [23]. With increase in global awareness of the magnitude of the problem of malaria, the RBM partners were able to create an urgency to the problem and advocate for elimination or decrease in taxes and tariffs on ITNs [23]. In addition, the success in communication and awareness of the problem lead to malaria being prioritized in the Global Fund, increasing the global impact of the RBM program.

## **Reverse Innovation: Bidirectional Collaboration in Global Health**

The term reverse innovation was first used by the business world to describe innovation that is "likely to be adopted first in the developing world before spreading to the developed world" [41]. Immelt et al. were describing the changing model adopted by General Electric (GE) with "local growth team" developing solutions that fits the local needs and at a price point that is affordable for wide adaptation. In China, more than 90% of the population utilizes healthcare facilities lacking

sophisticated imaging centers. A low-cost, compact ultrasound machine would be welcomed by these healthcare facilities to assist in diagnosis before determining if transportation to larger center is needed. No amount of “scaling down, removing features from, or otherwise adapting” of GE’s current ultrasound machine would accomplish the low cost and portability of what the local growth team developed, which “combined a regular laptop computer with sophisticated software” [39]. Although the resolution was not as high, it was less than 15% of the cost of GE’s high-end ultrasound. What GE did not expect was the quick adaptation of this compact ultrasound by the developed world for “new application where portability is critical or space is constrained.” The compact design allowed for bedside diagnosis of critical condition such as pericardial effusion by emergency first responder or ectopic pregnancy by emergency physician [39]. The worldwide growth for this compact ultrasound was at 50–60% worldwide before the recession. This is not the only popular product that GE has through reverse innovation. A few other examples include a \$1000 handheld electrocardiogram and an ultra-low-cost incubator, Embrace, for premature infants, that uses phase-change material rather than continuous electricity to keep the babies warm.

The adaptation of innovation from LMIC to developed countries for improved healthcare outcome is not limited to technology advancements alone. Antiretroviral treatment (ART) is not only effective in keeping the virus at bay and prolonging life in individuals with HIV infection; it also prevents transmission from mother to child and between partners. Cost aside, poor adherence to ART therapy in adults is most commonly attributed to simply forgetting, being away from home, or change to drug side effects [42]. Couple this with the side effects of therapy, need for long-term therapy, and stigmata, it is no surprise that adherence drops over time. Poor adherence not only leads to risk of disease progression but also risk of transmission, drug resistance, and increased mortality. Community-based ART program, supported by Partners In Health, administered by community health workers through directly observed ART therapy, psychosocial support, ongoing education, and 10-month nutritional assistance, in addition to travel stipend and integrated medical care, has shown high adherence to therapy. In rural Rwanda, retention rate was over 92% over the 1 year, with corresponding increase in CD4 count from 190 to 336 cells per microliter [43]. Interestingly, adherence in pooled estimates was better in SSA (77%) than in North America (55%) [44]. The model of community-based ART program developed for SSA was adopted in Boston by Dr. Heidi Behforouz, who had worked in SSA with Partners In Health, as the Prevention and Access to Care and Treatment (PACT) project to support marginalized patients in the city. Similar to the patient in rural Rwanda, those participating in the PACT program saw improvement in health with 70% achieving CD4 count greater than 250 cells per microliter and a 60% decrease in hospitalization [45].

The discovery of new technology or approach to provision of healthcare for the population in LMIC may prove to be equally valuable in high-income settings. Keeping an open mind to learn from our partners may benefit the patients “back home.”

## Summary

This first chapter provided an overview to the importance and complexity of global health – highlighted by the fact that even the term “global health” has been difficult to define and quickly leads to broader discussions which include universal rights and global security [46–49]. As the field of, and challenges within, global health continues to expand, so do the opportunities and resources, human and technological, available to meet these challenges. It is critical that these variables, stakeholders, and tools within the global health equation be focused on a mutually agreed upon definition of what “success” and “sustainability” look like and how progress toward these critically important goals is monitored.

Often in medicine, healthcare workers are trained to think of focal points of care, for example, a single patient or a procedure, while global health stresses the importance of understanding pathways of care and diverse populations of patients. Successful global healthcare professionals need to design innovative programs and work in cross-functional teams to address the more upstream causes of health issues including the discussed barriers to access. Leveraging and exchanging technologies can often provide force multipliers within a healthcare system and potentially lead to “reverse innovation” which can be an unexpected benefit of global collaborations.

Many healthcare professionals are interested in a life and career that build their global citizenship, challenge their beliefs, deepen their knowledge, and bring continued value and partnerships to larger and larger populations. Global health is a lifelong pursuit in nonlinear education through “lessons learned” like the case studies highlighted here, which leads to greater understanding and constant redesigning of oneself and the programs. The following chapters in this book explore specific geographies to global health education while covering the spectrum of care from traditional delivery of medicine to telehealth.

**Conflict of Interest** Dr. Vivian T. Yin is a consultant for Genentech Inc. and Merz Pharmaceuticals.

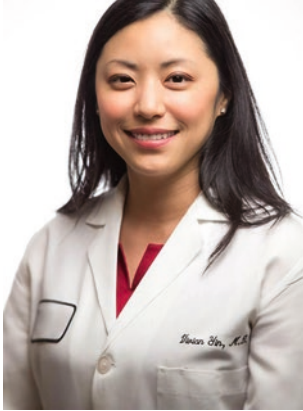
## References

1. Martiniuk ALC, Manouchehrian M, Negin JA, Zwi AB. Brain gains: a literature review of medical missions to low and middle-income countries. *BMC Health Serv Res.* 2012; 12:134.
2. Eusebio C, Kuper H, Polack S, Enconado J, Tongson N, Dionio D, et al. Rapid assessment of avoidable blindness in Negros Island and Antique District, Philippines. *Br J Ophthalmol.* 2007;91(12):1588–92.
3. Venkatesh R, Muralikrishnan R, Balent LC, Prakash SK, Prajna NV. Outcome of high volume cataract surgeries in a developing country. *Br J Ophthalmol.* 2005;89(9):1079–83.
4. Hutton DW, Le H-G, Aravind S, Ravindran RD, Aravind H, Ravilla T, et al. The cost of cataract surgery at the Aravind eye hospital. *India IOVS.* 2014;55(13):1289.

5. UN Department of Economic and Social Affairs. International decade for action: 'Water for Life' 2005–2015; 2014. <http://www.un.org/waterforlifedecade/africa.shtml>.
6. Obiols AL, Erpf K. Mission report on the evaluation of the PlayPumps installed in Mozambique. [Internet] 29 April 2008. Available from: [https://www-tc.pbs.org/frontlineworld/stories/southernafrika904/flash/pdf/mozambique\\_report.pdf](https://www-tc.pbs.org/frontlineworld/stories/southernafrika904/flash/pdf/mozambique_report.pdf).
7. Frontline. Troubled Water. [Internet] Available from: [http://www.pbs.org/frontlineworld/stories/southernafrika904/video\\_index.html](http://www.pbs.org/frontlineworld/stories/southernafrika904/video_index.html).
8. Chambers A. Africa's not-so-magic roundabout. [Internet] 24 Nov 2009. Available from: <https://www.theguardian.com/commentisfree/2009/nov/24/africa-charity-water-pumps-roundabouts>.
9. Population Education & Health Research Center Ltd. Nepal population report 2016. [http://www.mope.gov.np/downloadfile/Nepal%20Population%20Report%202016\\_1481259851.pdf](http://www.mope.gov.np/downloadfile/Nepal%20Population%20Report%202016_1481259851.pdf).
10. Paudel R, Upadhyaya T, Pahari DP. People's perspective on access to healthcare service in a rural district of Nepal. *JNMA J Nepal Med Assoc.* 2012;52(185):20–4.
11. Weiss DJ, Nelson A, Gibson HS, Temperley W, Peedell S, Lieber A, et al. A global map of travel time to cities to assess inequalities in accessibility in 2015. *Nature.* 2018;553:333–6.
12. Kukla M, McKay N, Rheingans R, Harman J, Schumacher J, Kotloff KL, et al. The effect of costs on Kenyan households' demand for medical care: why time and distance matter. *Health Policy Plan.* 2017;32(10):1397–406.
13. Muro F, Meta J, Renju J, Mushi A, Mabakilwa H, Olomi R, et al. "It is good to take her early to the doctor" – mother's understanding of childhood pneumonia symptoms and healthcare seeking in Kilimanjaro region, Tanzania. *BMC Int Health Hum Rights.* 2017;17:27–35.
14. Corsi DJ, Bassani DG, Kumar R, Awasthi S, Jotkar R, Kaur N, et al. Gender inequity and age-appropriate immunization coverage in India from 1992 to 2006. *BMC Int Health Hum Rights.* 2009;9(Suppl 1):S3.
15. Bonu S, Rani M, Baker TD. The impact of the national polio immunization campaign on levels and equity in immunization coverage: evidence from rural North India. *Soc Sci Med.* 2003;57:1807–19.
16. Lewallen S, Courtright P. Gender and use of cataract surgical services in developing countries. *Bull World Health Org.* 2002;80:300–3.
17. Stevens GA, White RA, Flaxman ST, Price H, Jonas JB, Keeffe J, et al. Global prevalence of vision impairment and blindness: magnitude and temporal trends, 1990–2010. *Ophthalmology.* 2013;120:2377–84.
18. Reddy PA, Kishiki EA, Thapa HB, Demers L, Geneau R, Bassett K. Interventions to improve utilization of cataract surgical services by girls: case study from Asia and Africa. *Ophthalmol Epidemiol.* 2018;25(3):199–206. Epub 2017 Nov 10.
19. Chol C, Hunter C, Debru B, Haile B, Negin J, Cumming RG. Stakeholder's perspectives on facilitators of and barriers to the utilisation of and access to maternal health services in Eritrea: a qualitative study. *BMC Pregnancy Childbirth.* 2018;18:35.
20. Escamilla V, Calhoun L, Winston J, Speizer IS. The role of distance and quality on facility selection for maternal and child health services in urban Kenya. *J Urban Health.* 2018;95(1):1–12.
21. Maketa V, Vuna M, Baloji S, Lubanza S, Hendrickx D, Inocencio da Luz RA, et al. Perception of health, healthcare and community-oriented health interventions in poor urban communities of Kinshasa, Democratic Republic of Congo. *PLoS ONE.* 2013;8(12):e84314.
22. Fink AJ. A possible explanation for heterosexual male infection with AIDS. *N Engl J Med.* 1986;315:1167.
23. Sharma SC, Raison N, Khan S, Shabbir M, Dasgupta P, Ahmed K. Male circumcision for the prevention of human immunodeficiency virus (HIV) acquisition: a meta-analysis. *BJU Int.* 2018;121(4):515–26. Epub 2018 Jan 29.
24. Joint United Nations Programme on HIV/AIDS (UNAIDS). On the fast-track to end AIDS. Geneva, Switzerland. UNAIDS; 2015. Available from: [http://www.unaids.org/sites/default/files/media\\_asset/20151027\\_UNAIDS\\_PCB37\\_15\\_18\\_EN\\_rev1.pdf](http://www.unaids.org/sites/default/files/media_asset/20151027_UNAIDS_PCB37_15_18_EN_rev1.pdf).

25. Hines JZ, Ntsuape OC, Malaba K, Zegeye R, Serrem K, Odoyo-June E, et al. Scale-up of voluntary medical male circumcision services for HIV prevention – 12 countries in southern and eastern Africa, 2013-2016. *MMWR Morb Mortal Wkly Rep.* 2017;66(47):1285–90.
26. Maibvise C, Mavundla TR. Reasons for the low uptake of adult male circumcision for the prevention of HIV transmission in Swaziland. *J AIDS Res.* 2014;13(3):281–9.
27. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat A-HS, Dellinger P, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med.* 2009;360:491–9.
28. Farmer PE, Kim JY. Surgery and global health: a view from beyond the OR. *World J Surg.* 2008;32(4):533–6.
29. USAID. Indicators and calculating coverage indicators. [Internet] Available from: <https://www.measureevaluation.org/resources/training/capacity-building-resources/m-e-of-malaria-programs-1/session-7-indicators/view>.
30. Malaria Consortium. Final report of the external evaluation of Roll Back Malaria. November 2002. [Internet] Available from: [http://pdf.usaid.gov/pdf\\_docs/pcaab382.pdf](http://pdf.usaid.gov/pdf_docs/pcaab382.pdf).
31. Ye Y, Eisele TP, Eckert E, Korenromp E, Shah JA, Hershey CL, et al. Framework for evaluating the health impact of the scale-up of malaria control interventions on all-cause child mortality in Sub-Saharan Africa. *Am J Trop Med Hyg.* 2017;97(Suppl 3):9–19.
32. Kasili EG. Malnutrition and infection as causes of childhood anemia in tropical Africa. *Am J Pediatr Hematol Oncol.* 1990;12(3):375–7.
33. USAID. Local systems: a framework for supporting sustained development. 2014. Available from: <https://www.usaid.gov/sites/default/files/documents/1870/LocalSystemsFramework.pdf>.
34. Fagan T, Wu Z. Sustainable HIV financing in Zambia: baseline analysis and prospects for new domestic resource mobilization. Washington, DC: Palladium, Health Policy Project; 2015.
35. Seva Foundation. History: celebrating nearly 40 years of service. [Internet] Available from: <http://www.seva.org/site/PageServer?pagename=about/history#>.
36. Natchiar G, Tulasiraj RD, Sundaram RM. Cataract surgery at Aravind Eye Hospitals: 1988–2008. *Comm Eye Health J.* 2008;21(67):40–2.
37. Madhavan N. Aurolab: eyeing success. *Business Today.* July 7, 2013. Available from: <http://www.businesstoday.in/magazine/special/innovation-special-aurolab-eye-care/story/195886.html>.
38. Yang A, Farmer P, McGahan AM. “Sustainability” in global health. *Glob Public Health.* 2010;5(2):129–35.
39. Courtright P, Mathenge W, Kello AB, Cook C, Kalua K, Lewallen S. Setting targets for human resources for eye health in sub-Saharan Africa: what evidence should be used? *Hum Resour Health.* 2016;14:11.
40. Nkhata MJ, Muzambi M, Ford D, Chan AK, Abongomera G, Namrata H, et al. Shifting human resources for health in the context of ART provision: qualitative and quantitative findings from the Lablita baseline study. *BMC Health Serv Res.* 2016;16(1):660.
41. Immelt JR, Govindarajan V, Trimble C. How GE is disrupting itself. *Harv Bus Rev.* 2009;87:56–65.
42. Shubber Z, Mills EJ, Nachega JB, Vreeman R, Freitas M, Bock P, et al. Patient-reported barriers to adherence to antiretroviral therapy: a systematic review and meta-analysis. *PLoS Med.* 2016;13(11):e1002183.
43. Rich ML, Miller AC, Niyigena P, Franke MF, Niyonzima JB, Soccia A, et al. Excellent clinical outcomes and high retention in care among adults in a community-based HIV treatment program in rural Rwanda. *J Acquir Immune Defic Syndr.* 2012;59(3):e35–42.
44. Mills EJ, Nachega JB, Buchan I, Orbinski J, Attran A, Singh S, et al. Adherence to antiretroviral therapy in sub-Saharan Africa and North America. *JAMA.* 2006;296(6):679–90.
45. Behforouz HL. Bridging the gap: a community health program saves lives, then closed its doors. *Health Aff.* 2014;33(11):2064–7.
46. Beaglehole R, Bonita R. What is global health? *Glob Health Action.* 2010;3:5142–3.

47. De Cock KM, Simone PM, Davison V, Slutsker L. The new global health. *Emerg Infect Dis.* 2013;19(8):1192–7.
48. Berlinguer G. Globalization and global health. *Int J Health Serv.* 1999;29(3):579–95.
49. Koplan JP, Bond TC, Merson MH, Reddy KS, Rodriguez MH, Sewankambo NK, et al. Towards a common definition of global health. *Lancet.* 2009;373(9679):1993–5.



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# Chapter 2

## Global Health Education



Carl Lawson

*“Education is the most powerful weapon which you can use to change the world.”*  
– Nelson Mandela

### Introduction

Global health, a multidisciplinary field that involves education, practices, and research, has been defined by various organizations and practitioners in different ways. However, there is a near consensus among transnational groups and global health professionals that global health is concerned at its core with achieving health equity for all people and deals with a broad scope of health problems and solutions requiring interdisciplinary cooperation. Therefore global health is relevant to all health professionals in all locales in all specialties.

With any discipline, accompanying educational modalities are required to complement and enhance the discipline in practice. Institutions of health professions specifically must evolve to train future healthcare professionals to address the challenges that accompany increasing global interconnectedness [27]. There is a compelling need for institutions to prepare students to understand the broad scope of determinates, including socioeconomic factors, and how they interact with shifting patterns of health and disease affecting health status globally [27].

The identified need for appropriate global health training for postgraduate health professionals, as well as the desire among medical students at institutions in high-income countries to learn about global health and engage in international training experiences, is well documented [1, 2, 8, 11, 19, 25]. Medical students and other healthcare professional students and trainees have increasingly sought out transnational global health experiences to complement their primary institution-based curricula. Many of these institutions have created or facilitated opportunities for student practicum experiences and other activities

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within low- and middle-income countries, as well as research opportunities for faculty [1].

Multiple transnational organizations (including the World Health Organization – WHO), research partnerships, and educational consortia have identified the need for the development of core competencies in global health for future health professionals and have begun this process [1, 15, 27]. In addition to collaborations led by educational institutions, WHO has reported that over 100 global health initiatives or partnerships have been established, most within the twenty-first century [39]. This is a welcomed and overdue change from international health education centered in high-income Western countries that did not incorporate the knowledge and perspective of persons in low- and middle-income countries and was neither interprofessional nor collaborative in its approach [10].

With so many synergistic efforts, as well as emerging challenges, it is clear that we are in the midst of an exciting and crucial period in global health. There has never been a period of greater consensus to work across real and perceived national and disciplinary boundaries to positively affect the well-being of all persons. Nor has there been a time in which transnational travel, collaboration, and communication have been so easily achievable. This is also a unique period in which the burden of infectious disease has decreased significantly, yet far too many deaths from infectious disease continue to occur, and noncommunicable diseases and injuries account for the majority of the global burden of death, a trend projected to continue well into the future.

Considering these facts, it will only be through activities rooted in inclusiveness and interdisciplinary collaboration that sustainable and successful global health programming will occur. This chapter will aid in the understanding of global health and spell out the importance of a broad and inclusive prospective within global health education.

## International Health

In order to better understand global health and global education, it is beneficial to consider the antecedent of global health – international health – which itself was predated by “tropical medicine and hygiene” [27]. For much of the latter half of the twentieth century until the present, the term international health was used within high-income Western countries to encompass a specific set of foci.

International health at its inception was primarily concerned with public health issues within low-income countries that were then referred to as “Third World” countries (later referred to “developing” or “underdeveloped” countries).<sup>1</sup>

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<sup>1</sup>I use the more accurate and useful term “low- and middle-income country.” Although WHO Member States are grouped into four income groups (low, lower-middle, upper-middle, and high) based on the World Bank list of analytical income classification of economies for the fiscal year (see: [http://www.who.int/healthinfo/global\\_burden\\_disease/definition\\_regions/en/](http://www.who.int/healthinfo/global_burden_disease/definition_regions/en/) and <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>),



International health concerned itself with the leading causes of morbidity and mortality in the early and mid-twentieth century within these countries – infectious diseases (starting with enteric diseases such as cholera and dysentery and then expanding to including HIV/AIDS) and communicable “tropical” diseases (e.g., many vector-borne disease such as malaria, yellow fever, and dengue) [17]. The infectious disease emphasis of international health also included vaccine development and use with the aim of preventing pandemics and disease elimination and eradication – the eradication of smallpox in 1978 and the widespread elimination of polio are classic examples.

Maternal and child health (MCH) was also a major foundational focus of international health. MCH focused on reducing high rates of maternal and infant mortality in so-called developing countries. To this end, international health concentrated upon water, sanitation, and hygiene (WASH) practices, with the aim of halting the spread of diarrhea-inducing enteric disease pathogens which had disproportionately devastating effects on children under the age of 5, through preventative public health measures. Finally, international health sought to address malnutrition associated with lower health status and increased mortality, particularly as related to MCH.

Although early international health efforts sought to address major aforementioned population-wide issues using public health preventative measures, economic aid to so-called developing countries often focused on building large, complex, mostly urban-based hospitals. When the modern era of development aid disbursements from high-income countries to lower-income countries began in the 1950s, donor countries frequently imposed health initiatives that emphasized advanced technology and urban-based curative care in hospitals ([22], 284). This emphasis on “modern” urban hospitals at times resulted in less resources being available for programs in rural areas where the majority of persons in low-income countries resided ([22], 224). Thus, the primacies of wealthier countries at times took precedent over the needs of the majority of people in low-income countries who benefited most from community-based preventative measures most effective in reducing the key international health indicators of infant and maternal mortality.

International health from its inception was top-down in its orientation and approach with a premium placed on institutions and persons within high-income Western countries. By top-down I refer both to the hierarchies that place higher-income countries over countries with lesser income per person (i.e., per capita GDP) and health professionals with advanced terminal degrees from Western universities over those health professionals that do not have such credentials.

The shortcomings of international health, in terms of its lack of emphasis on communal participation and interdisciplinary collaboration, are summed up within the definition provided by the Global Health Education Consortium (GHEC). GHEC, a nongovernmental agency consisting of faculty and healthcare educators dedicated to global education in health profession schools and residency programs,

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“low- and middle-income country” (aka LMIC) is a widely used designation in the respective global health and development literature.

defined international health as “a subspecialty that ‘relates more to health practices, policies and systems...and stresses more the differences between countries than their commonalities’” [17].

This statement is reflective of international health’s original orientation as a top-down construct in which ideas and resources (material, knowledge-based, and otherwise) flowed one way from high-income countries to countries with lower per capita incomes. Within this dynamic, high-income countries were positioned as the sole locus of knowledge and innovation, whereas the “developing countries” were positioned only as the field of practice where Western-designed and Western-led interventions were to occur [1, 7]. Thus this conceptualization focused more on intervention than on collaboration across national boundaries, wealth differences, and areas of expertise.

Accordingly, the educational centers for the study of international health in Western countries mirrored the reality of international health in practice. These educational centers’ international health programs (often referred to as “tropical medicine” or “tropical hygiene” programs) were designed with top-down curriculum and research foci, as well as international activities. For example, Western institutions have at times used teaching hospitals in low-income countries solely as sites to train their students or for their own faculty to conduct research without substantial engagement with or recognition of local health authorities and clinicians [1]. This practice has often been referred to as “parachute” research or “parachuting,” in which foreign constituencies enter into a county to meet their research and/or educational needs and facilitate limited or no capacity transfer [1].

This is part of a greater dynamic between high-income and low- and middle-income countries that has been termed by some as the “semicolonial model.” Within this, model institutions and individuals from outside of the country where the research is to take place set the research agenda and take leadership roles in research projects. This model, which places low emphasis on sustainability and generalizability of research findings, contributes to intra-country “brain drain” by attracting the best and brightest away from national research institutions [7]. It is this legacy of colonial and neocolonial international relations that maintains a “subtle undercurrent of a superior/inferior dichotomy” present in many contemporary transnational collaborations [1].

Over time intergovernmental organizations provided a platform by which low- and middle-income countries were able to articulate a vision for international health and healthcare that was much more inclusive of those not of high-income countries and Western institutions and reflective of their realities. The most significant development in this area was the development of Primary Healthcare as outlined by the Declaration of Alma-Ata adopted at the International Conference on Primary Healthcare sponsored by the WHO and the United Nations Children’s Fund (UNICEF) [28]. This declaration, developed from input from representatives from 134 countries (most low- and middle-income), identified health as a fundamental human right and health status as a determinant of socioeconomic conditions and thus identified economic and social development as requisites for improved health status [28].

The ultimate goal of primary healthcare as articulated by WHO is simply stated as “better health for all.” This overarching goal is to be accomplished through reduc-

ing exclusion and social disparities in health, organizing health services around people's needs and expectations, integrating health into all sectors, pursuing collaborative models of policy dialogue, and increasing stakeholder participation [38]. This viewpoint and stance, in many ways, formed the conceptual foundation for global health.

## What Is Global Health?

There are multiple definitions for this unique field encompassing practice, study, and research. Generally speaking, all articulations of global health incorporate the collaborative and “bottom-up” approach that seeks to develop appropriate actions informed by input from the countries, institutions, and communities most affected by the issue(s) of concern. This approach is in alignment with the Alma-Ata Declaration and incorporates primary healthcare principles.

In 1997 the US-based Institute of Medicine (IOM) in its formative report on the US Commitment to Global Health defined global health as “Health problems, issues, and concerns that transcend national boundaries, which may be influenced by circumstances or experiences in other countries, and which are best addressed by cooperative actions and solutions” [13]. In 2009 IOM released a revised definition, characterizing global health as “the goal of improving health for all people in all nations by promoting wellness and eliminating avoidable disease, disabilities, and deaths” [14].

In 2009 global health leaders from academic research institutions in multiple countries (the USA, India, Mexico, and Uganda, including the executive board members of the Consortium of Universities for Global Health<sup>2</sup>) developed a broad, comprehensive definition. They defined global health as an “...area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasises transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care” [17].

These global health leaders expounded on their definition of global health by writing “...global refers to any health issue that concerns many countries or is affected by transnational determinants, such as climate change or urbanisation, or solutions, such as polio eradication. Epidemic infectious diseases such as dengue, influenza A (H5N1), and HIV infection are clearly global. But global health should also address tobacco control, micronutrient deficiencies, obesity, injury prevention, migrant-worker health, and migration of health workers. The global in global health refers to the scope of problems, not their location...” [17]. Subsequent definitions

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<sup>2</sup>CUGH is a Washington, D.C.,-based organization of over 165 academic institutions and other organizations on 5 continents engaged in addressing global health challenges. CUGH builds interdisciplinary collaborations and facilitates the sharing of knowledge to address global health challenges. It is dedicated to creating equity and reducing health disparities everywhere [6].

of global health have come to stress the importance of research as a specific action to inform solutions. One such definition, for example, succinctly defines global health as “collaborative trans-national research and action for promoting health for all” [3].

The statement from Koplan et al. is an acknowledgement of the reduction of the overall proportion of the global disease burden attributable to communicable diseases such as enteric diarrheal diseases and tropical diseases that were the primary foci of international health. This has resulted in remarkable progress toward the reduction of infant and maternal mortality globally, and an increase in life expectancy, changes that are most profound in low-income countries [29].

However, along with this demographic shift has come a change in the global economy that has made food and beverage products that are high in sugar, saturated fat, and sodium content but low in overall nutritional value, alcohol, and harmful substances (illicit and legal) more accessible in low- and middle-income countries. Also, major changes in population distribution and concentration in urban areas have also contributed to lifestyle changes, changes that make physical activity less common and exposure to environmental hazards more commonplace. Without significant countermeasures, this situation is projected to worsen with the continuing growth of “megacities” – rapidly developing urban centers of ten million or more persons [16].

These shifts in demographics and lifestyles have resulted in an increase in the proportion of the global burden of disease attributable to noncommunicable diseases (NCDs) and injuries. These NCDs include diabetes, cardiovascular diseases, overweight and obesity, cancers, chronic respiratory disease, depression, and alcohol/substance addiction. Injuries contributing significantly to the global burden of morbidity and mortality include those resultant from motor vehicle accidents, self-harm, injuries related to employment, and violence (including intimate partner violence and gender-based violence) which is more prominent in the world’s multiplying megacities [16].

Regarding NCDs, the need for expanded global health education in this area is particularly relevant because the causes of NCDs are largely preventable through the implementation of appropriate multidisciplinary public health and healthcare measures. One such preventable condition is overweight/obesity. High levels of overweight and obesity across low- and middle-income countries have approached levels found in higher-income countries and continue to rise. This is particularly true in the Middle East and North Africa and in Latin America and the Caribbean regions and indicates a clear and present need for actions led by global health professionals educated in NCD prevention and care and health determinants [24].

Projections for the WHO Eastern Mediterranean Region, which includes the Middle East and North Africa, are telling of the demographic changes and lifestyle changes fueling the increased global burden of NCDs. According to WHO, this region will witness the highest and fastest increase in cancer prevalence in the

world due to population aging and unhealthy lifestyle practices, which include tobacco consumption [32, 33]. Furthermore, the global prevalence of diabetes in adults rose from 4.7% (108 million persons) in 1980 to 8.5% (422 million persons) in 2014, an increase largely attributable to changes in food consumption, decreased physical activity, and urbanization. Cigarette smoking has also been identified an independent risk factor for type 2 diabetes and major increases in tobacco consumption have been predicted for Africa in the Eastern Mediterranean Region [4, 12, 35, 36].

Unfortunately, the burden of NCDs is not limited to morbidity; NCDs are now collectively responsible for 60% of all deaths, with cardiovascular diseases the leading single cause of death category globally [32, 33, 35, 36]. An estimated 17.7 million people died from CVDs in 2015, representing 31% of all global deaths [35, 36].

## Global Health Education

As the conceptual shift from international health to the broader and more inclusive global health model occurred within transnational organizations, NGOs, and research organizations, institutions of higher education in Western countries also began to reflect this change. Mirroring international health practices, institutions of higher learning initially focused on curriculum on public health interventions in developing countries to reduce infant mortality, maternal mortality, and tropical disease-associated morbidity and deaths.

Students were therefore taught that international health was concerned with bringing modern scientific methods and practices to lesser developed regions. Furthermore, academic scholars were encouraged to enter into these regions and use them as areas to hone their expertise, test their hypotheses, and gather the data to be published in Western peer-reviewed journals. Also, health professional students were taught in isolation from other students and trainees with different health and healthcare specialties [10]. Therefore, the future physician, physical therapist, pharmacist, nurse, etc. did not train together as a team even though they would one day be expected to apply their knowledge and skills to improving the well-being of the same patient.

Over time, however, academic departments at Western colleges and universities and health-focused organizations incorporated a much broader range of subjects within an international context [17]. These subjects include chronic noncommunicable diseases, injuries (unintentional and intentional), and the development and enhancement of health systems – the totality of all organizations, people, resources, and actions whose primary intent is to promote, restore, or maintain health [17, 31].

Multiple organizations have recognized the need to shape global health into a field that has inclusiveness as an immutable core characteristic and have taken actions to codify collaboration into global health. The membership of the previously

mentioned GHEC included faculty, healthcare educators, and others from more than 70 health profession schools and training programs in the North America, Central America, and the Caribbean [37].

This consortium was founded to facilitate global health education in four areas – curriculum and training materials development, clinical training, career development, and education policy [37]. GHEC sought to advance global health education through the facilitation of international educational experiences and exchanges for students and faculty, promote faculty development and global healthcareer tracks, develop global health education policies, and develop and maintain collaborative partnerships with organizations with similar goals [37]. In a demonstration of global health collaboration and cooperation, in 2011, GHEC merged with the aforementioned Consortium of Universities for Global Health (CUGH), an organization formed to promote mutually beneficial, long-term partnerships between universities in resource-rich and resource-poor countries and strengthening institutional capabilities and developing human capital [6]. CUGH now hosts the GHEC Internet-based teaching module project *Teaching Global Health: Competencies, Curricula, Methods, Evaluation*<sup>3</sup> designed to improve the quality and efficiency of global health education [23].

The utility of learning about global health outside of educational institutions in high-income countries is perhaps best articulated by researchers writing on the short-term Gorgas International Post-Graduate Course taught at the Universidad Peruana Cayetano Heredia in Peru [9]. This university and its collaborators have long acknowledged that global health “infectious diseases training and research needs to be both hands-on and conducted in the actual context where public health challenges are encountered, enabling realistic evaluation and problem solving” [26]. This recognition of the unique value of environment-informed training view can be applied to other global health training modules and programs focusing on health issues other than infectious diseases as well.

The noted strong and consistent interest from students and faculty has been matched by significant commitment to global health by universities and their funders. In the last two decades, there has been a rapid expansion of formal global health programs at both the graduate and undergraduate levels at Western universities [19]. Within the first decade of the twenty-first century, several prominent US universities have started global health-focused programs. This includes the University of California at San Francisco and Duke University, the first two US institutions to matriculate students in a Master of Science in Global Health degree program, and the University of California system which developed its Institute for Global Health Sciences – a university system-wide alliance to promote global health research, education, and collaboration [21].

Although tremendous progress has occurred in the areas of global health and global health education, there is a glaring need for greater inclusiveness. The commitment to global health within academia must also extend to support students,

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<sup>3</sup>Available at <http://cugh.org/forums/teaching-global-health-competenciescurricula-methods-and-evaluation>.

faculty, and researchers from and working within low-income and non-Western countries, and to members of underrepresented groups in high-income countries as well. Restrictions that result in limiting who receives formal credentials in a global health field and who is able to conduct quality research limit the number and scope of culturally appropriate and environmentally appropriate global health solutions.

The dearth of academic research with a global health focus from low- and middle-income countries is striking. According to one analysis of global health research in academic peer-reviewed journals, authors from US or Canadian institutions wrote 87% of articles sampled [18]. This study's authors found only two articles, or 0.5% of the total number of global health research articles examined, were from institutions based in low- and middle-income countries [18].

This scarcity of authors from institutions in low- and middle income countries within the academic literature is reflective of the lack of support (including infrastructural, financial, and institutional) for researchers and research institutions within these countries, which limits global health research output. However, it is important to note that the underlying cause of this lack of support is systemic underdevelopment resultant from systems of exploitation (e.g. colonialism and neocolonialism) that benefit higher income countries at the expense of so-called developing countries. Although these countries produce scholars and researchers of the highest caliber, they are often restrained by a relative lack of resources at their universities and research institutes which often leads them to seek opportunities at institutions in high-income countries or high-income country supported institutes within their home countries that are better positioned to facilitate research and subsequent publications [7]. This, in turn, exacerbates the underrepresentation of authors from low- and middle-income country institutions within the global peer-review academic literature. This dynamic reinforces the antiquated and incorrect notion that investigators and institutions in these areas are not to be the leaders and primary global health change agents within their own countries.

## **Interprofessional Education and Practice**

According to WHO, interprofessional education “occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.” Within this conceptualization, a “professional” is used as to describe “individuals with the knowledge and/or skills to contribute to the physical, mental and social well-being of a community” [32, 33]. It is only through collaborative interprofessional education and practice and expanded transnational efforts (including research) that the emerging challenges faced within global health can best be addressed.

The conclusions about global health reached by organizations such as IOM, WHO, the CUGH and many independent researchers all share in common a clear expressed need for interprofessional practice and interdisciplinary and transnational collaboration. For example, WHO, in its *World Health Report* [30]: *Working*

*Together for Health*, states that global health stakeholders must “work together through inclusive alliances and networks local, national, and global across health problems, professions, disciplines, ministries, sectors, and countries,” in order to actualize country-wide plans of action [30].

Recognizing the importance of essential knowledge and values within global health, the CUGH appointed a Global Health Competency Subcommittee and charged it with identifying broad global health core competencies applicable across disciplines [15]. This group’s comprehensive list of competencies that are applicable across disciplines and geographic and social contexts was subsequently published as the peer-review article, *Identifying Interprofessional Global Health Competencies for 21st-Century Health Professionals* [15]. The comprehensive list of competencies was organized under the following domains: global burden of disease; globalization of health and healthcare; social and environmental determinants of health; collaboration, partnering, and communication; ethics; professional practice; health equity and social justice; sociocultural and political awareness; capacity strengthening; program management; and strategic analysis [15].

Although this list of competencies was developed with a focus on trainees at US and Canadian institutions and thus requires more consideration of students and institutions in other countries, it is an important step in guiding a global health educational framework upon which further curricular development and program and student evaluation can be developed. This aspirational list according to the CUGH subcommittee serves as “A set of global health-specific competencies ideally represents the full range of knowledge, skills, and attitudes that trainees should possess when they obtain a degree or certificate in global health” [15].

Perhaps most inspiring among the many competencies are those included under the domain of collaboration, partnering, and communication. This domain includes the following competencies – “Include representatives of diverse constituencies in community partnerships and foster interactive learning with these partners” and “Exhibit interprofessional values and communication skills that demonstrate respect for, and awareness of, the unique cultures, values, roles/responsibilities and expertise represented by other professionals and groups that work in global health” [15]. These competencies, which encourage all to recognize and respect subject-matter expertise of all collaborators, signal a clear paradigm shift within health-focused work and training in a global context, an incredibly encouraging development.

The repeated importance that global health organizations and consortiums place on interprofessional collaboration on multiple levels is an implicit effort to discourage past and current actions that promote “silo building.” This is the dynamic in which professionals do not share information, build common knowledge, or collaborate with other professionals with shared interests and goals – in this case, by improving well-being for all within the context of global health. Anti-silo building and adoption of a cross-collaborative mindset and practice must be encouraged not only during the training phase for future global health professionals but also throughout their careers.

Interprofessional collaboration within healthcare has been defined as a “partnership between a team of health providers and a client in a participatory collaborative and coordinated approach to shared decision making around health and social issues” and interprofessional professional practice as “synergistic influence of



grouped knowledge and skills” [5]. The value of interprofessional collaborative training to produce the next generation of physicians, nurses, psychologists, physical therapists, pharmacists, and other healthcare professionals who are able to successfully promote healthcare quality and effectiveness has been recognized by a plethora of academic institutions and professional groups and advocated for by the Institute of Medicine [5].

Numerous academic institutions in low, middle, and high-income countries have developed interprofessional-focused curricula in the last thirty years [5, 33]. Many of these institutions have also begun the process of integrating global health training into their interprofessional-focused education, practicum, and research programs. However, such institutions are found disproportionately in high-income Western countries. There still exists a major need for the creation and maintenance of such global health-centered interprofessional education and training programs in low- and middle-income countries.

One admirable step toward this goal of creating hubs for interprofessional global health centered outside of wealthy institutions in high-income countries is the Rwandan Human Resources for Health (HRH) program. Conceived by the Rwandan Ministry of Health and launched in 2012, HRH is a comprehensive 7-year commitment to rebuild the Rwandan medical education system, with the overall goal of creating a sustainable, high-quality healthcare system [1]. Rwanda-focused, but transnational in its design, HRH partnered with an initial consortium of US partners, serving at the invitation and under the direction of Rwandan leadership, from eight medical schools, five nursing schools, two dental schools, and a health management program that sent faculty members to work in interdisciplinary teams alongside Rwandan partners at Rwandan teaching hospitals [1]. In this relationship, US partners strive for Rwandan-developed and Rwandan-owned solutions to medical education challenges [1].

## **Future States: The Case for Global Health**

The need for highly skilled individuals and well-equipped institutions able to teach comprehensive global health core competencies stretches across all areas of specialty and geographic locales. Global health has, in large part, moved beyond the parameters set by international health that focused on training physicians, nurses, epidemiologists, and WASH specialists addressing tropical and diarrheal infectious diseases. Global changes in demography, economy, and lifestyle, especially in low- and middle-income countries, have resulted in noncommunicable diseases and injuries comprising a greater portion of the global burden of morbidity and mortality.

Thus, there is a clear and present need for health professionals and researchers to address this global illness and mortality epidemiology. Accordingly, the urgent need for clinicians with noncommunicable disease specialties, mental health professionals, physical therapists, biomedical researchers, epidemiologists well-versed in NCDs and injuries, and health system and laboratory system specialists, among others, must be met through high-quality global health education programs. In order for global health efforts to be most effective, educational institutions, training pro-

grams, and transnational academic research must expand in their scope, number, and inclusiveness.

However, it is important to note that the need for a more diverse set of global health professionals and educational curricula is not a matter of instead of those with a traditional international health foundation but rather *in addition to*. Global health education programs must incorporate the emphasis on interprofessional collaboration as recommended by numerous global health organizations and leaders in the field and also place emphasis on long-term care and rehabilitation to increase physical mobility and mental well-being, all of which should be designed to increase quality of life and productivity for all.

Furthermore, global health education and academic research institutions must be geared to producing graduates and researchers capable of integrating the wider range of global health with existing public health and medical infrastructure. In order to further this objective, students and current healthcare professionals in high-income countries and institutions must be taught to view professionals in low- and middle-income countries as their peers as researchers and innovators. Along with this teaching must come increased material, financial, and technical support for researchers and research institutions in low- and middle-income countries to meet a countries' unique research needs and address the disparity in published research.

Lastly, global health education is vital in preparing future generations of global health-focused professionals to develop culturally and environmentally appropriate practices informed by collaboration with stakeholders of varying constituencies. These actions must transcend professional specialty, national borders, and wealth disparities. Ultimately, such collaborative interdisciplinary efforts will prove invaluable in advancing global objectives through the production of data that will inform advocacy efforts to adopt best practices and influence policy on all levels.

## Conclusion

While considering the many successes and progress in global health, there is still a need for transnational actions led by low- and middle-income countries. There are a growing number of low- and middle-income countries, including among others, China, Thailand, Mexico, and South Africa, which are now establishing their own global health education centers and institutions, an encouraging sign [1]. The Rwandan HRH program can be looked upon as a foundational example of best practice in equitable engagement for future low- and middle-income country-led global health programs, in that the Rwandan Ministry of Health conceived of the program, advocated for its success, and leads its management [1].

Such efforts will contribute greatly to improving the quality of life for millions through the exchange of knowledge and the development of sustainable best practices. They will also result in more research, publications, students, and professionals from low- and middle-income countries, thus expanding the range of participation in research and reducing the disparity in published research between high-income country-based institutions in lower income countries.

The challenge of securing and expanding funding for collaborative global health training and research and to support student global health experiences still remains [20]. This challenge is particularly pressing for global health programs, students, and researchers in low-income countries. Encouragingly, international research opportunities supported by major donor organizations, NGOs, as well as government agencies, in both communicable diseases and NCDs, are increasing [1].

As we continue to move further away from the antiquated top-down Western-model toward a more inclusive and collaborative global health model, global health stakeholders (including affected populations) must be positioned to better collaborate and listen to each other. This is particularly important because as the changing global disease burden necessitates moving away from disease-specific approaches, interdisciplinary collaboration in discovering and delivering better methods for disease prevention, treatment, and rehabilitation, particularly for NCDs and injuries, will be paramount to achieve future successes [20]. In order to best address the complex and changing global burden of preventable morbidity and mortality, educational institutions, students, faculty and professional, funders, and advocates must work to make collaborative interprofessional global health education an enduring reality that seeks to achieve health equity for all.

## References

1. Adams L, Wagner C, Nutt C, et al. The future of global health education: training for equity in global health. *BMC Med Educ.* 2016;16:296. <https://doi.org/10.1186/s12909-016-0820-0>.
2. Bateman C, Baker T, Hoornenborg E, Ericsson U. Bringing global issues to medical teaching. *Lancet.* 2001;358:1539–42.
3. Beaglehole R, Bonita R. What is global health? *Glob Health Action.* 2010;3(1):5142. <https://doi.org/10.3402/gha.v3i0.5142>.
4. Bilano V, Gilmour S, Moffiet T, d'Espaignet E, et al. Global trends and projections for tobacco use, 1990–2025: an analysis of smoking indicators from the WHO Comprehensive Information Systems for Tobacco Control. *Lancet.* 2015;385(9972):966–76.
5. Bridges D, Davidson R, Odegard P, et al. Interprofessional collaboration: three best practice models of interprofessional education. *Med Educ Online.* 2011; <https://doi.org/10.3402/meo.v16i0.6035>.
6. Consortium of Universities for Global Health. Mission & background. 2018. <https://www.cugh.org/about>. Accessed 13 Feb 2018.
7. Costello A, Zumla A. Moving to research partnerships in developing countries. *BMJ.* 2000;321:827. <https://doi.org/10.1136/bmj.321.7264.827>.
8. Edwards R, Rowson M, Piachaud J. Teaching international health issues to medical students. *Med Educ.* 2001;35(8):807–8.
9. Freedman D, Gotuzzo E, Seas C, et al. Educational programs to enhance medical expertise in tropical diseases: the Gorgas Course experience 1996–2001. *Am J Trop Med Hyg.* 2002;66(5):526–32.
10. Frenk J, Lincoln C, Zulficar A, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet.* 2010;376(9756):1923–58.
11. Heck J, Wedemeyer D. International health education in US medical schools: trends in curriculum focus, student interest, and funding sources. *Fam Med.* 1995;27(10):636–40.
12. Hu FB. Globalization of diabetes: the role of diet, lifestyle, and genes. *Diabetes Care.* n.d.;34(6):1249–57. <https://doi.org/10.2337/dc11-0442>.

13. Institute of Medicine. America's vital interest in global health: protecting our people, enhancing our economy, and advancing our international interests. Washington, DC: National Academy Press; 1997. [http://books.nap.edu/openbook.php?record\\_id=5717&page=11](http://books.nap.edu/openbook.php?record_id=5717&page=11). Accessed 14 Feb 2018.
14. Institute of Medicine (US) Committee on the US Commitment to Global Health. The US commitment to global health: recommendations for the public and private sectors. Washington, DC: National Academies Press; 2009. [https://www.ncbi.nlm.nih.gov/books/NBK32623/pdf/Bookshelf\\_NBK32623.pdf](https://www.ncbi.nlm.nih.gov/books/NBK32623/pdf/Bookshelf_NBK32623.pdf). Accessed 14 Feb 2018.
15. Jogerst K, Callender B, Adams V, et al. Identifying interprofessional global health competencies for 21st-century health professionals. *Ann Global Health*. 2015;81(2):239–47.
16. Jowell A, Zhou B, Barry M. The impact of megacities on health: preparing for a resilient future. *Lancet Planet Health*. 2017;1(5):e176–8. [https://doi.org/10.1016/S2542-5196\(17\)30080-3](https://doi.org/10.1016/S2542-5196(17)30080-3).
17. Koplan J, Bond T, Merson M, et al. Towards a common definition of global health. *Lancet*. 2009;373:1993–5.
18. Macfarlane S, Jacobs M, Kaaya E. In the name of global health: trends in academic institutions. *J Public Health Policy*. 2008;29(4):383–401.
19. Matheson A, Pfeiffer J, Judd L, et al. Sustainability and growth of university global health programs. Washington DC: Center for Strategic Studies; 2014. [http://csis.org/files/publication/I40507\\_Matheson\\_UniversityEngagement\\_Web.pdf](http://csis.org/files/publication/I40507_Matheson_UniversityEngagement_Web.pdf). Accessed 15 Feb 2018.
20. Merson M. University engagement in global health. *N Engl J Med*. 2014;370:1676–8.
21. Merson M, Page K. The dramatic expansion of university engagement in global health: implications for US policy. Washington DC: Center for Strategic and International Studies; 2009.
22. Seear M. Primary healthcare strategies: the essential foundation. In: Seear M, editor. *An introduction to international health*. 2nd ed. Toronto: Canadian Scholars' Press, Inc; 2012. p. 281–300.
23. Northwestern. Northwestern University Feinberg School of Medicine – Center for Global Health. 2017. <http://globalhealth.northwestern.edu/education/apply/predeparture-prep.html>. Accessed 14 Feb 2018.
24. Popkin B, Slining M. New dynamics in global obesity facing low- and middle-income countries. *Obes Rev*. 2013;14(0 2):11–20. <https://doi.org/10.1111/obr.12102>.
25. Rowson M, Smith A, Hughes R, et al. The evolution of global health teaching in undergraduate medical curricula. *Glob Health*. 2012;8:35. <https://doi.org/10.1186/1744-8603-8-35>.
26. Villafuerte-Galvez J, Curioso J. Teaching global health at the frontlines. *PLoS Med*. 2007;4(6):e130. <https://doi.org/10.1371/journal.pmed.0040130>.
27. Walpole S, Shortall C, van Schalkwyk M, et al. Time to go global: a consultation on global health competencies for postgraduate doctors. *Int Health*. 2016;8(5):317–23.
28. World Health Organization. Primary healthcare: report of the International Conference on Primary Healthcare, Alma-Ata, USSR, 6–12 September 1978 / jointly sponsored by the World Health Organization and the United Nations Children's Fund. 1978. <http://apps.who.int/iris/handle/10665/39228>. Accessed 12 Feb 2018.
29. World Health Organization. The world health report 2003: shaping the future. Geneva: World Health Organization; 2003.
30. World Health Organization. The world health report 2006: working together for health. Geneva: World Health Organization; 2006. <http://www.who.int/whr/2006/en/>. Accessed 12 Feb 2018.
31. World Health Organization. Everybody's business: strengthening health systems to improve health outcomes: WHO's framework for action. 2007. [http://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](http://www.who.int/healthsystems/strategy/everybodys_business.pdf). Accessed 13 Feb 2018.
32. World Health Organization. Background Paper: Non-communicable diseases in low- and middle-income countries. Paper presented at the Regional High-level Consultation in the Eastern Mediterranean Region on the Prevention and Control of Non-communicable Diseases in Low- and Middle-Income Countries, Government of the Islamic Republic of Iran, Tehran, 25–26 October 2010.
33. World Health Organization. Framework for action on interprofessional education and collaborative practice. Geneva: World Health Organization; 2010.

34. World Health Organization. The world health report 2013: research for universal health coverage. Geneva: World Health Organization; 2013. <http://www.who.int/whr/2013/report/en/>. Accessed 12 Feb 2018.
35. World Health Organization. Cardiovascular diseases (CVDs) fact sheet. 2017. <http://www.who.int/mediacentre/factsheets/fs317/en/>. Accessed 18 Feb 2018.
36. World Health Organization. Diabetes fact sheet. 2017. <http://www.who.int/mediacentre/factsheets/fs312/en/>. Accessed 14 Feb 2018.
37. World Health Organization – Global Health Workforce Alliance (WHO-GHWA). Global Health Education Consortium. Members & Partners – Global Health Education Consortium. 2018. [http://www.who.int/workforcealliance/members\\_partners/member\\_list/ghec/en/](http://www.who.int/workforcealliance/members_partners/member_list/ghec/en/). Accessed 13 Feb 2018.
38. World Health Organization. Health topics – primary healthcare. 2018. [http://www.who.int/topics/primary\\_health\\_care/en/](http://www.who.int/topics/primary_health_care/en/). Accessed 2 Feb 2018.
39. World Health Organization Maximizing Positive Synergies Collaborative Group (WHO-MPSCG). An assessment of interactions between global health initiatives and country health systems. *Lancet*. 2009;373(9681):2137–69.



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# Chapter 3

## Perspectives on Global Health and Volunteerism for Healthcare Providers: The Importance of Preparation, Identification and Management of Infectious Diseases, and Mitigation of Other Risks



Celia J. Maxwell and Shaliyah Sledge

*In examining disease, we gain wisdom about anatomy and physiology and biology. In examining the person with disease, we gain wisdom about life.* – Oliver Sacks

The world's population has experienced a threefold increase to about 7.5 billion people over an approximately 65-year period. With this increase there's been an attendant increase in international tourist arrivals [1], including those visiting friends and relatives (VFR), mostly to underdeveloped countries. There has also been an increase in interest as well as participation, albeit not well quantified, of healthcare workers (HCW) in medical missions particularly to under-resourced countries [2]. In the preceding 20 years or more, many healthcare providers from highly resourced countries like the USA and Canada have provided volunteer health services in low- and middle-income countries [3], for a number of reasons. With ease of accessibility to almost anywhere in the world, healthcare providers can travel on short notice, most for short periods of time, to provide needed assistance primarily in under-resourced areas. While some provision of healthcare services may be to areas or countries with severely limited resources but that are stable, a significant number are to areas of acute disease outbreaks, natural disasters, population displacements, or conflict.

Additionally, many healthcare workers may need to provide care in extreme conditions with negligible or absent healthcare infrastructure, lack of basic hygienic supplies, high risk of infectious diseases acquisition, and encounters with violent acts including kidnappings [4]. HCWs may also participate in high-risk travel with

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very little personal health preparation for this undertaking and have little if any cultural or other country-specific knowledge [5].

Before departure the volunteer HCW should ensure that their personal and mental health is in optimal shape. If there is a history of chronic medical illnesses, these should be stable (Wu, HM CDC Yellow Book 2018): their immunization records should be available and reviewed for protective titers, or if booster immunizations are needed; measures for vector avoidance (mosquitoes and others), day and night, as well as the need for antimalarial prophylaxis or treatment need to be reviewed [6]; and dental and mental health screenings should be performed before travel [7]; understanding cultural and some language norms, preparation for handling diseases associated with poverty in resource-poor countries, using locally available medications or equipment, as well as integrating the services of local providers would be integral to a successful mission among others.

## **Pre-deployment Preparation**

### ***Getting Ready: Your Personal Health***

Exposure to preventable communicable diseases will be a constant for most volunteers going to areas where resources are limited and the public health infrastructure suboptimal or nonexistent. It is expected that most HCWs will have at least a basic immunization profile as part of requirements for current or previous employment. It is also recommended that all healthcare settings where direct patient care is provided have policies in place relative to preventative immunizations [8] and encourage the compliance of all HCPs. Notwithstanding the recommendations, a significant number of HCWs have waning or no immunity to measles, mumps, rubella, or hepatitis B [9, 10] for a number of reasons including refusals to update immunizations. HCPs with chronic illnesses managed with medications should ensure that they have an adequate supply to last the duration of the trip; additionally if they will have an extended tour of duty in an area, they should ascertain if there are preparations available in the country of service that can serve as a substitute [11]. The HCW should be aware that several classes of prescription drugs are highly regulated in many countries including narcotics and psychotropics. There may be a need to travel with a prescription. In some instances a person can carry up to 30 days of a narcotic for personal use. Each traveler is encouraged to review these regulations by consulting the International Narcotics Control Board (INCB) [12]. Dental evaluations as well as psychological stability reviews are of paramount importance. Many HCWs in areas of conflict or natural disasters may have to work for extended hours, under personally dangerous conditions and are often exposed to a great deal of human suffering. These events can trigger or lead to depressive episodes, anxiety, or post-traumatic stress disorder among others [13]. HCWs should consider the potential impact of long-term residence or service in areas of increased health or safety risks on their family, especially young children.

Additionally, there must be heightened awareness that occupational exposure to diseases may involve contact with infected individuals that have not developed any symptomatology (i.e., Ebola outbreak in West Africa) [11]. Availability of special dietary support (gluten-free, no dairy, or refrigeration required) if available will be costly and usually not part of the staple food supply of a number of distressed areas. Women should be aware that personal use/hygiene items like sanitary napkins/tampons or even soap may not be available in areas with a distressed public health infrastructure system and should be part of the shipment of supplies to be taken or sent to the area if possible prior to deployment. Violent attacks on healthcare workers including volunteers, while not widespread, have increased over the years; while most reports are from parts of Africa and the Middle East (WHO 2017) [14], all HCWs should be aware of this potential risk and prepare accordingly.

Insurance for emergency healthcare or evacuations from a distressed area should be obtained in the eventuality the HCW becomes seriously injured. In the unlikely event of death of a volunteer HCW, and the need to repatriate human remains, pre-planning should have been done to address this eventuality, especially as this is a distressing and often a very costly process [15].

### *Getting Set: Know the Country/Area/Culture*

While many HCWs volunteer in distressed areas, do so because of a sense of altruism, they must remain cognizant that they can also cause significant harm to communities. This harm may happen for many reasons including the lack of a public health focus for their work, little understanding of the culture (i.e., role of women in some countries is very limited), lack of familiarity with currently prevalent diseases, communicable and others, not engaging and/or working with local providers or using locally sourced treatment modalities, bringing complex equipment for use without ensuring that resources/skills for follow-up maintenance of such are in place, and worse creating community dependency with no planning for sustainability among others [5].

As part of planning for service at a minimum, learning some or comfort with medical terminology in the language or dialect would be expected. Additionally, knowledge and understanding of acceptable cultural mores is equally important, i.e., pointing of the index finger to get the attention of a person or at an object may be considered rude in some cultures and handing an object such as a business card with both hands in others is considered polite. Appropriate garb especially for women is an expectation in many countries, so overly formfitting or revealing clothing or uncovered arms or legs are usually not appropriate. Bathroom facilities, if present, are not the traditional western variety and often may be just a hole in the ground. Injuries especially motor vehicle accidents are a leading cause of death or disability for travelers including volunteers [16]. This is more impactful than death or disability due to infectious diseases (24% vs 2%). As well, violence is a significant public health problem throughout the world so volunteers should inquire about



these conditions prior to deployment and make appropriate plans to mitigate including perhaps obtaining security personnel and dedicated drivers for transportation.

### ***Go: Be Prepared for the Unexpected/Travel Literacy/Know How***

International travel under the best of circumstances can be challenging, and leaving to volunteer in a disaster area or one where the infrastructure is less than ideal should be planned for carefully. Flight cancellations or delays are common even with non-commercial (chartered) flights. Additionally, accommodations especially on long-haul trips are often not ideal (cramped seating arrangements). Unfortunately, adding to the above challenges is the fact that many Americans including HCWs are often unprepared for travel on short notice even if they would like to help. The reasons are multifactorial including not having a valid passport, as obtaining a new one can take up to 60 days. Also there will be other requirements for travel/entry into the host country such as the obtaining of visas or work permits and other travel documentation to provide services. Further it is important to secure safe lodging and have a contingency plan for this if there are unexpected changes. In areas where the infrastructure is damaged or destroyed (earthquakes, tsunamis, etc.), the volunteer should expect and plan for limited or no personal support or assistance with logistics including accommodations.

It would also be prudent for the volunteer to link with local HCWs who can potentially provide some guidance relative to local health needs as well as assist in the navigation of the local or regional healthcare terrain. Coordination with other groups who may be there for volunteer activities would be prudent. This will minimize duplication of services, increase the availability of needed resources, and improve interactions with other healthcare providers. Working with or thru an agency experienced in providing services in distressed areas would be beneficial. Registering travel with the US Department of State's Smart Traveler Enrollment Program (STEP) (<http://step.state.gov>) is extremely important. This will allow the US government to better assist the HCW in case of emergency abroad including locating the nearest US Embassy or Consulate.

Each volunteer should travel with a health/first aid kit that is more extensive than the usual ones including having antiretroviral drugs for postexposure prophylaxis (PEP) to HIV and antibiotics (Table 3.1); additionally personal items like photos of family members, religious objects, or special music may aid in the relief of some of the stressful experiences the volunteer may encounter. For important documents such as passports or health records, copies should be carried on the flight not as part of checked luggage.

**Table 3.1** Volunteer HCW's health and first aid kit (FAK)

Toiletries/FAK	Protective clothing	Items for daily living	Safety and security
Toothbrush and toothpaste	Comfortable, lightweight clothing	Sunglasses	Money belt
Skin moisturizer	Long pants	Sunscreen	Cash
Soap, shampoo	Long-sleeved shirts	Insect repellent	Cellular telephone, equipped to work internationally, or satellite telephone (with charger)
Lip balm	Hats	Waterproof watch	Candles, matches, and lighter in a zip-top bag <sup>b</sup>
If corrective glasses are used: Extra pair of prescription glasses in a protective case and copy of the prescription Eyeglasses cleaning supplies and repair kit Extra contact lenses and lens cleaner	Boots	Flashlight	Extra zip-top bags
Disposable razor, extra cartridges	Shower shoes	Spare batteries	
Nail clippers	Rain gear	Sewing kit	
Toilet paper	Bandana or handkerchief	Laundry detergent	
Menstrual supplies	Towel (highly absorbent travel towel if possible)	Small clothesline and clothespin	
	Gloves (leather gloves if physical labor will be performed; rubber gloves if handling blood or body fluids)	Travel plug or voltage adapters for electronics	

Toiletries/FAK	Protective clothing	Items for daily living	Safety and security
	Safety goggles	Knife, such as a Swiss Army knife or Leatherman <sup>a</sup>	
Complete first aid kit Many commercially available		If traveling to an area where food and water may be contaminated: Bottled water or water filters/ purification tablets Nonperishable food items	
		If traveling to malaria-endemic areas: Personal bed net (insecticide-impregnated)	

Gushulak [11]

<sup>a</sup>Pack these items in checked baggage, since they are considered sharp objects and will be confiscated by airport or airline security if packed in carry-on bags

<sup>b</sup>See [www.tsa.gov](http://www.tsa.gov) for restrictions on traveling with lighters and matches

## Deployment

### *Living Environment/Transportation*

Once the HCW has arrived in the country, a thorough analysis of the surroundings would be in order. Transportation should have been pre-arranged from the airport to the lodging or work site. While often not available, seat belts should be used if present. Additionally, if the transportation is by a motorized bike, a safety helmet is “a must.” If lodging is on the ground floor or a lower floor, I have found it personally useful not to place my luggage on the floor. I usually elevate it on a chair or luggage rack if available. This helps to ensure that small reptiles/rodents don’t have easy access for entry. I also suggest that if bed slippers are used, these be elevated on nightstands or other appropriate objects to avoid being bitten or stung (scorpions, etc.) when the foot is placed in the slipper particularly at night when visibility may be low. Boiling of water if the option is available is a good idea, as boiled and subsequently cooled water can be used for brushing of teeth, washing of fruits or non-cooked vegetables, and cooling to drink or to make ice if there is electricity. As mentioned previously, personal security is paramount, so the volunteer should ensure the room/apartment has secure doors and windows. At the same time, there should be access to an exit if the need arises. Windows should have net covering, but the HCW should also sleep under a bed net if in a malaria-endemic area.

**Table 3.2** Examples of insect repellents for use on skin and clothing<sup>a</sup>

Suggestions for use	DEET	Picaridin	Oil of lemon eucalyptus	Permethrin
Exposed skin	x	x	x	
% concentration	20%–50%	20%	30%	
Use on clothing				x

<sup>a</sup>Never use repellents over cuts, wounds, or irritated skin. Do not apply to the eyes or mouth. Never apply under clothing

### *Vector Avoidance*

When going outdoors long-sleeved shirts/tops and long pants with socks should generally be utilized, and all clothing should ideally be impregnated with insect repellent (i.e., permethrin). Clothing so treated will retain repellent efficacy thru multiple washings and for a number of weeks. Closed shoes or boots offer more in terms of protection especially in unstable terrain or areas with poor physical infrastructure than would sandal-type footwear. Additionally, it is important to remember to use insect repellent on exposed skin areas (i.e., picaridin, DEET), keeping in mind that this is to be used after sunscreen is first applied [17]. The HCW should also keep in mind that the efficacy and how long the protection lasts vary. Sun and insect protection can depend on how hot it is and if the person experiences heavy perspiration or immersion in water. If DEET is used, concentrations of >20% are recommended by the CDC, albeit concentrations of > than 50% do not seem to add additional protection time to the wearer (EPA): <http://cfpub.epa.gov/oppref/insect/> (Table 3.2).

### *Safe Food and Water*

One of the most challenging aspects of work in under-resourced or unstable areas is the availability of safe food and water for human consumption. At the outset HCWs should remember that tap water in distressed areas is never safe unless treated and should not be ingested or used for rising or storing contact lenses. There are a number of ways that the water safety issue can be mitigated. First, if available, boiling the water is an excellent option as that water can later be cooled and stored in safe containers and used for drinking, washing of fruits or non-cooked vegetables, or for other uses such as toothbrushing. However, if the water is contaminated by toxins or chemicals, it will not be made safe for consumption by boiling. Other ways that water can be made safe for use include the use of filters, halogens (chlorine, iodine) additives, or ultraviolet devices for disinfection. As recommended previously, the HCW should bring nonperishable food supplies with them such as meals ready to eat (some varieties with chemical heaters for warming) if at all possible (Table 3.3).

**Table 3.3** Suggested water disinfection techniques

Heat	Filtration	Halogens	Ultraviolet (UV)
No change in taste or color	Easy to operate, many commercially available	Cheap available in liquid/tablet forms	Imparts no taste, portable devices available
One-step inactivation of enteric pathogens	No holding time for treatment	Easy to treat large and small volumes	Effective against all waterborne pathogens
No improvement in taste, smell, or appearance	May improve taste and appearance	Preserves microbiologic quality of stored water	Solar UV exposure also provides substantial benefit
Fuel source for heating may be unavailable	Adds bulk and weight to baggage	Distinct taste and odor to water	Needs clear water, does not improve taste or appearance
Potential recontamination during storage	May not reliably remove viruses and potential recontamination during storage	Not effective against <i>Cryptosporidium</i> oocysts. Iodine has potential side effects	Relatively expensive, no prevention of recontamination during storage

Backer [18]

## Work Environment/Healthcare Facility

### *Needlestick Risk*

The volunteer should be prepared to navigate a working environment lacking the usual protections they would be used to in developed countries, including ease of access to personal protective equipment (PPE) such as gloves, goggles, and sharps containers among others. Needlestick exposure and injuries have a greater likelihood of occurrence in unfamiliar or crowded work settings, so the HCW should anticipate having to prepare a substitute container such as using soft drink can or a plastic laundry detergent bottle to safely discard used sharps if the need arises [19]. It is also important to keep in mind that many viruses that cause disease can also be transmitted by needlestick including HIV, hepatitis, hemorrhagic fevers (i.e., Ebola), dengue, and rarely malaria.

In the event that a needlestick occurs, the volunteer should record information on the source patient, obtain blood samples from the patient for later laboratory evaluations if possible, and perform a rapid HIV test. Unless it can be confirmed that the source patient is not HIV infected, PEP (postexposure prophylaxis) should be started within 72 h and appropriate follow-up instituted.

## Infectious Diseases Exposure/Risks/Mitigation

### *Hand Hygiene*

Exposure to infectious diseases from many sources, including potential contamination of the environment, with agents like multidrug resistant organisms, will be high for the HCW volunteer in distressed settings. However, one action can help to mitigate morbidity and mortality from this exposure; this is hand hygiene and environmental disinfection [20]. The consistent practice of hand hygiene has been demonstrated in healthcare settings to reduce incidence of severe illness including ventilator-associated pneumonias [21]. Of concern is that HCWs even in resource-replete settings often do not follow the basic recommendations relative to hand-washing in healthcare settings. The volunteer in a distressed setting should ensure that hand hygiene is practiced and must be diligent that it is practiced regularly. This can be accomplished with soap and water or with sanitizing gels where the supply of clean water is limited.

### *Malaria*

The dusk-to-dawn (nighttime)-biting female *Anopheles* mosquito can transmit malaria, a protozoan disease. Internationally, malaria is a significant public health concern and was the cause of about 1/2 million deaths in 2015. While transmission has been demonstrated in Africa, Southeast Asia, Latin America, the Caribbean, and the Middle East, the mortality rate was shown to be the highest in Africa (WHO malaria Fact Sheet 2016 [22]). Clinically, infection is usually characterized by fever, headache, and other flu-like symptoms; however, it can present early on as a bout of gastroenteritis. The symptoms usually develop approximately 2 weeks after exposure but can also present months after departure from an endemic area. Suspected malaria or confirmation of infection, especially if caused by the *Plasmodium falciparum* species, should be considered a medical emergency requiring urgent treatment. HCW volunteers to malaria-endemic areas should avail themselves of and use chemoprophylaxis shortly before departure, the entire period in the malaria-endemic area, and for the recommended time after return home. A note of caution is that this chemoprophylaxis should be obtained in the USA (for Americans) to avoid the risk of obtaining counterfeit or ineffective medications in distressed areas ([www.cdc.gov/malaria/diagnosis\\_treatment.html](http://www.cdc.gov/malaria/diagnosis_treatment.html)). Additionally, vector avoidance, use of insect repellents, and sleeping under bed nets are prudent.

## Dengue, Zika, Chikungunya, and Yellow Fever

Bites (dawn to dusk or during daylight) of the *Aedes aegypti* and/or *Aedes albopictus* mosquitoes are the most common cause for infection with dengue, Zika, chikungunya, and yellow fever. However, with the exception of yellow fever, there are no preventative vaccines available, and depending on the host, these diseases can cause severe morbidity as well as mortality. In some instances, laboratory identification of the causative agent for illness may be complicated due to the potential for cross-reactivity within this group of flaviviruses in an area endemic for all. Vector avoidance and the use of insect repellents are strongly recommended.

### *Dengue*

Endemic in tropical and subtropical areas of Latin America, the Caribbean, Southeast Asia, and a small region in East Africa [23], dengue can be manifested as a febrile illness about 1 week after exposure. About 75% of infections produce no symptoms, and when there are symptoms, they are mostly mild to moderate. Among the symptoms are the abrupt onset of fever, myalgia, bone pain, and/or severe headache sometimes associated with retrobulbar pain and a rash. Of great concern is the approximately 5% of patients that develop severe dengue with a hemorrhagic diathesis culminating in shock and or circulatory failure and about a 10% mortality rate. Diagnosis should be suspected with the clinical presentation and confirmed with laboratory evaluation. The treatment is generally supportive with good hydration. Selection of living accommodations with screened windows or air conditioning, if available, would be a helpful preventative. Of note is that these mosquitoes can easily survive in urban or residential areas including inside the home. Elimination of containers (no matter how small) of standing water that allow for larva development is important to risk reduction. The volunteer HCW should focus on vector avoidance as a first defense.

### *Zika*

While initially identified in the late 1940s in Uganda, very few cases of Zika were reported in Africa or Asia. However, around 2007 there were outbreaks of this disease in the South Pacific Islands and in Southeast Asia. Further, it was first described in the Americas in 2015 with a large outbreak in Brazil, with subsequent spread throughout the region, including a small area in the Southeastern USA. Sharing a common insect vector as one mode of transmission, it can present with symptoms similar to those of dengue or chikungunya with one notable exception, the presence of conjunctivitis (Table 3.4). There have also been reports of neurological disorders in adults infected with Zika, including the Guillain-Barre syndrome. Most infections are asymptomatic,

**Table 3.4** Clinical features of Zika, dengue, and chikungunya

Clinical features	Zika	Dengue	Chikungunya
Fever	++	+++	+++
Rash	+++	+	++
Arthralgia	++	+	+++
Headache	+	++	++
Myalgia	+	++	+
Conjunctivitis	++	–	–
Hemorrhage	–	++	–
Shock	–	+	–

[http://emergency.cdc.gov/coca/ppt/2016/01\\_26\\_16\\_zika.pdf](http://emergency.cdc.gov/coca/ppt/2016/01_26_16_zika.pdf)

however. Transmission of Zika virus can also occur thru sexual exposure or by contaminated blood. Of concern is the significant impact on pregnant women as a cause of congenital fetal abnormalities in infants that were exposed in utero. Diagnosis can be made by serology on serum (collected <7 days after first symptoms) or by urine (collected <14 days after first symptoms). However, interpretation of the tests can be complicated by cross-reacting antibodies against other viral illnesses such as dengue. Treatment is supportive. Condoms should be used for a prolonged period by men who were infected and became symptomatic to prevent transmission to sexual partners. As described above the volunteer HCW should ensure if possible vector avoidance and use insect repellents (<http://www.cdc.gov/zika>).

### *Chikungunya*

Large outbreaks of chikungunya have been reported worldwide and in the Americas (including the Caribbean Islands). This illness has a high attack rate with only about 30% of those people that are infected remaining asymptomatic. The incubation period can be from 3 to 7 days. For those developing the disease, abrupt onset of high fever and joint pains are usually the presenting signs/symptoms. Additionally, other symptoms like headache, rash, nausea, and vomiting as well muscle aches may be present. While the acute symptoms usually resolve in under 2 weeks, of concern is the potential for prolonged symptomatic joint pains' persistence for months or years that can be debilitating to the patient. Serology can confirm a diagnosis, and treatment is usually symptomatic. Vector avoidance and use of insect repellents are strongly recommended ([www.cdc.gov/chikungunya](http://www.cdc.gov/chikungunya)).

### *Yellow Fever*

This disease is found in sub-Saharan Africa and South America (Table 3.5).



**Table 3.5** Countries with risk of yellow fever virus (YFV) transmission<sup>a</sup>

Africa			Central and South America
Angola	Ethiopia <sup>b</sup>	Nigeria	Argentina <sup>b</sup>
Benin	Gabon	Senegal	Bolivia <sup>b</sup>
Burkina Faso	Gambia, The	Sierra Leone	Brazil <sup>b</sup>
Burundi	Ghana	South Sudan	Colombia <sup>b</sup>
Cameroon	Guinea	Sudan <sup>b</sup>	Ecuador <sup>b</sup>
Central African Republic	Guinea-Bissau	Togo	French Guiana
Chad <sup>b</sup>	Kenya <sup>b</sup>	Uganda	Guyana
Republic of Congo	Liberia		Panama <sup>b</sup>
Democratic Republic of the Congo	Mauritania <sup>b</sup>		Paraguay
Equatorial Guinea	Niger <sup>b</sup>		Peru <sup>b</sup>
Côte d'Ivoire	Mali <sup>b</sup>		Suriname
			Trinidad and Tobago <sup>b</sup>
			Venezuela <sup>b</sup>

<sup>a</sup>Countries or areas where “a risk of YFV transmission is present,” as defined by the World Health Organization, are countries or areas where “yellow fever has been reported currently or in the past, plus vectors and animal reservoirs currently exist” CDC Yellow Book 2018: Health Information for International Travel. New York: Oxford University Press; 2017

<sup>b</sup>These countries are not holoendemic (only a portion of the country has risk of yellow fever transmission). CDC Yellow Book 2018: Health Information for International Travel. New York: Oxford University Press; 2017

Currently, there are outbreaks of this disease in Angola and Brazil. However, the risk of illness or death for an unvaccinated person visiting an endemic area is greater in West Africa than in South America. Most infected people are asymptomatic, but for those who become ill, the incubation period is usually less than 7 days and can start with a flu-like illness. While the majority improve, about 15% will develop a more serious form of the disease that can lead to death in up to 50% of those affected. Preliminary diagnosis is based on clinical symptoms with laboratory confirmation by serology. Treatment is supportive and for those with severe disease may include intensive care unit support. There is an effective vaccine, but there are contraindications/precautions relative to use depending on the host. Each person including HCWs going to a yellow fever-endemic area may be required to show proof of vaccination at least 10 days prior to entry into the requiring country and must have a properly executed International Certificate of Vaccination or Prophylaxis. Vector avoidance and use of insect repellents are strongly recommended ([www.cdc.gov/yellowfever](http://www.cdc.gov/yellowfever)).

## Respiratory Infections

### *Influenza*

HCWs deployed/volunteering to areas with unstable healthcare infrastructures should avoid exposure to respiratory infections and have prophylaxis for those where available, like influenza (flu vaccine). While circulation varies by geography,

it is usually found in many tropical areas throughout the year. Consistent hand hygiene is a significant intervention in the interruption of transmission [19]. As well, preventative modalities such as the vaccine should be employed. If the HCW develops symptoms consistent with influenza, the institution of early antiviral therapy can shorten the duration of illness and reduce the risk of complications. Travel with antiviral agents including oral oseltamivir or inhaled zanamivir may be prudent ([www.cdc.gov/flu](http://www.cdc.gov/flu)).

## ***Tuberculosis***

Risk of exposure to and acquisition of *Mycobacterium tuberculosis* infections (MTB) is high for HCWs especially those working in high-burden countries [19] including India, countries of the former Soviet Union, China, and Africa among others. Of greater concern is the development of MTB drug resistance where currently available medications are ineffective for treatment.

It is important then that all HCWs, before embarking on a mission to areas where there is a significant risk of exposure, be screened for this infection prior to departure. A tuberculin skin test (TST) is one modality of screening (especially the use of the two-step testing modality, to determine if the HCW was previously exposed). Information on prior exposure would be critical data if the HCW had a positive skin test reaction before departure, thus avoiding misclassifications of positive skin tests (when the HCW returns) as new infections with its attendant concerns, especially if exposure was in a country where TB was known to exhibit antibiotic resistance. An alternative to the two-step TST would be an interferon release assay (blood-based) test [24].

## **Post-deployment Evaluation: The Return Home**

All HCWs returning from work in an under-resourced country or one with significant healthcare infrastructure instability should have a medical evaluation. The need for a follow-up examination is especially the case if the HCW had any injuries or illnesses in the field. Additionally, they should understand and or expect the need for monitoring including quarantine may be required for those potentially exposed even if not symptomatic to entities such as hemorrhagic viruses (i.e., Ebola virus). It is important also that the HCW plans for a period of rest and adjustment prior to returning to full-time duty in their home country. Additionally, as mentioned earlier, HCWs deployed in areas of conflict or natural disasters may have had to work for extended hours, under personal dangerous conditions, and may have been exposed to a great deal of human suffering. These events can trigger or lead to depressive episodes, family relationship dysfunction, anxiety, or post-traumatic stress disorder that can last for an extended period after return home. Evaluation by a mental health professional would be strongly recommended. Sharing lessons learned and or

personal anecdotes with other potential HCW volunteers in the home country and producing professional or lay publications about the experience, including suggestions for improving service delivery for other HCWs considering volunteer service in distressed settings, would provide an excellent outlet for expression for the HCW. Finally, if at all possible continuing some form of professional relationship/dialogue by email, skype, phone, or other avenues with persons from the areas of service, planning for sustainability of some of the work started including redeployment could prove to be of benefit both to the recipient and the volunteer HCW.

## References

1. United Nations World Tourism Organization. Sustained growth in international tourism despite challenges. January 17, 2017. Retrieved from <http://www2.unwto.org/press-release/2017-01-17/sustained-growth-international-tourism-despite-challenges>.
2. Martiniuk A. Brain gains: a literature review of medical missions to low and middle-income countries. *BMC Health Serv Res*. 2012. Retrieved from <https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-12-134>.
3. Carey R, Carter-Templeton H, Paltzer J. Preparing health professions volunteers to serve globally. *J Christ Nurs*. 2015;32(4). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/26548178>.
4. Wu H, Dhara R, Czarkowski A, Nilles E. Risks for healthcare workers practicing during travel outside the United States. Centers for Disease Control and Prevention. *CDC yellow book 2018: health information for international travel*. New York: Oxford University Press; 2017.
5. Wilson J, Merry S, Franz W. Rules of engagement: the principles of underserved global health volunteerism. *Am J Med*. 2012;125(6).
6. Chavez TD. Pre-travel malaria chemoprophylaxis counselling in a public travel medicine clinic in Sao Paulo, Brazil. *BMC Health Serv Res*. 2017.
7. Callahan MV, Hamer DH. On the medical edge: preparation of expatriates, refugee and disaster relief workers, and Peace Corps volunteers. *Infect Dis Clin North Am*. 2005.
8. Advisory Committee on Immunization Practices, Centers for Disease Control and Prevention (CDC). Immunization of healthcare personnel: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*. 2011.
9. L'Ecuyer PB, Miller M, Winters K, Fraser VJ. Tuberculosis, hepatitis B, rubella, rubeola, and varicella infection and immunity among medical school employees. *Infect Control Hosp Epidemiol*. 1998.
10. Steingart KR, Thomas AR, Dykewics CA, Redd SC. Transmission of measles virus in healthcare settings during a communitywide outbreak. *Infect Control Hosp Epidemiol*. 1997.
11. Gushulak B. Humanitarian aids workers. In: Centers for Disease Control and Prevention. *CDC yellow book 2018: health information for international travel*. New York: Oxford University Press; 2017.
12. Goodyear L. What you need to know about traveling with medications. *IAMAT Travel Health J*. 2012.
13. Connorton E, Perry M, Hemenway D, Miller M. Humanitarian relief workers and trauma related mental illness. *Epidemiol Rev*. 2012;34(1):145–55.
14. World Health Organization. WHO. Attacks on healthcare dashboard. 2017. Retrieved from <http://www.who.int/emergencies/attacks-on-healthcare-2016>.
15. Connolly R, Prendiville R, Cusack D, Flaherty G. Repatriation of human remains following death in international travelers. *J Travel Med*. 2017.
16. World Health Organization. WHO global status report on road safety. Geneva: World Health Organization; 2015.

17. Mutebi J, Hawley W, Brogdon W. Protection against mosquitoes, ticks, & other arthropods. In: Centers for Disease Control and Prevention. CDC yellow book 2018: health information for international travel. New York: Oxford University Press; 2017.
18. Backer H. Water disinfection for travelers. In: CDC yellow book 2018: health information for international travel. New York: Oxford University Press; 2017.
19. Kortepeter M, Seaworth B, Tasker S, Burgess T, Coldren R, Aronson N. Healthcare workers and researchers traveling to developing-world clinical settings: disease transmission risk and mitigation. *Clin Infect Dis*. 2010.
20. World Health Organization. WHO. Malaria Fact Sheet: world Malaria Report 2016. December 2016.
21. Bhatt S, Gething PW, Brady OJ, Messina JP, Farlow AW, Moyes CL, et al. The global distribution and burden of dengue. *Nature*. 2013.
22. Chemaly RF, Simmons S, Dale C, et al. The role of the healthcare environment in the spread of multidrug-resistant organisms: update on current best practices for containment. *Ther Adv Infect Dis*. 2014;2(3–4):79–90.
23. Su KC, Kou YR, Lin FC, et al. A simplified prevention bundle with dual hand hygiene audit reduces early onset ventilator-associated pneumonia in cardiovascular surgery units: an interrupted time-series analysis. *PLoS One*. 2017;12(8).
24. LoBue P. Tuberculin skin testing of travelers. In: Centers for Disease Control and Prevention. CDC yellow book 2018: health information for international travel. New York: Oxford University Press; 2017.



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# Chapter 4

## What Could Go Wrong?: Providing a Moral Grounding to the Ethics of Short-Term Medicine



Michael McCarthy and Virginia E. McCarthy

*The thesis is that our identity is partly shaped by recognition or its absence, often by the misrecognition of others, and so a person or group can suffer real damage, real distortion if the people or society around them mirror back to them a confining or demeaning or contemptible picture of themselves. Non-recognition or misrecognition can inflict harm, can be a form of oppression, imprisoning someone in a false distorted and reduced mode of being – [1]*

### Introduction

Charles Taylor's thesis in essence answers the question posed as the title of this chapter, "what could go wrong?" Amidst the medical and practical consequences that have been well-documented, a misrecognition of the communities and the individuals encountered during short-term medical immersion (STMI) can fail to foster relationships built on trust and hospitality for both the guests and the hosts. However, the prevalence of unethical stories that immerse from short-term trips raises questions about the challenges that exist with the sheer volume of annual trips. A 2008 survey revealed that over 6000 STMI depart for low-middle-income countries (LMIC) annually, with expenses of around \$250 million dollars, and little to no on-site assessment of quality or effectiveness of these trips [2]. When assessments do occur, they typically focus on the number of patients seen or procedures performed. However, these types of measurements, while important, do not speak to the broad ethical considerations these trips require of participants.

The number of hospitals and universities that offer STMIs has raised ethical questions around finances, effectiveness, and utility for the host communities. Only

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in recent years have guidelines and resources been developed to address some of these concerns. In large part, STMIs go unchallenged because people perceive these trips as inherently good [3]. However, in ethics the good needs to be considered not only in light of its intentions, which may indeed be good, but the outward effects and the motivations for that actions.

This chapter explores not only frameworks for ethics in short-term medicine but the moral groundings that motivate these efforts. The argument begins by clarifying the language used when describing short-term medicine and pushes for the use of short-term medical immersions (STMI) as the preferred descriptor. After clarifying the language, the chapter looks at existing ethical frameworks that establish parameters for both individuals and institutions that participate in STMI. However, ethical frameworks imply values behind these ethical “dos and don’ts.” In an effort to explore the moral underpinning of the two ethical frameworks described, the final section turns to an exploration of the philosophical notion of recognition. Recognition serves as moral grounding of STMI in which both the guest and host recognize the dignity and value of one another in developing mutual responsibility both for and with the other through STMI.

## **Defining the STMI Experience**

Using one’s medical resources, financial and skill based, in predominantly low-middle-income country (LMIC) settings for a brief period of time, has been characterized by many names. Medical brigades, short-term volunteer trips, global health experiences, medical mission trips, “voyeurism,” and STMI share the common thread of short-term volunteering to provide medical service in under-resourced areas. The use of short-term medical immersion (STMI) in this chapter is intentional in that it offers a description of the purpose and intended outcome of the experience. The definition of short-term describes a range from one week up through one year and spans a spectrum of purpose and services provided. The medical component can take many forms, such as surgical missions, general medicine campaigns, participation in mobile clinics, clinical rotations, capacity building and exchange, targeted research, or preclinical introduction or exposure. Immersion may perhaps be the most underutilized descriptor in the realm of these experiences but is one that proves important.

An immersion experience encourages the visitor to move outside of one’s comfort zone and enter into a relationship with and learn from the other. In contrast to STMIs, unethical models of short-term medical experiences such as duffle bag medicine, pop-up medical clinics, and many medical brigade or procedure-based models represent mechanisms of engagement that work outside of the healthcare structure of the host community, ask very little of the guests by way of ongoing relationship or partnership, and place little emphasis on thorough preparation, evaluation, and sustainable initiatives. Similarly, it is important to consider ethically concerning motivations for participation in STMI experiences, such as the desire to

share “best practices” in situations which may be perceived to have lower educational standards, to elevate LMIC practices to those of HIC practice, to proselytize or convert members of the local community, and to perpetuate structures of power or injustice (albeit inadvertently), practicing new technique(s), distributing expired medications, or for any form of self-aggrandizement. These activities seem like obvious practices to avoid but can sometimes be incorporated into an STMI inadvertently or cloaked in good intention. These unethical short-term medical approaches tilt less toward immersion or altruistic service and more toward a voyeuristic tourism.

Voluntourism combines elements of voyeurism and tourism in a way that captures a clear expression of that which an STMI ought to avoid. By characterizing STMIs as a form of voluntourism, the emphasis on the experience focuses on the opportunity to travel and lend a helping hand in a way that may, or may not, offer a benefit to the community to which one travels. Within “voluntourism,” the descriptor is an emphasis on “tourism” [4, 5]. Tourism connotes not only the idea of travel but to travel leisurely or for pleasure. Moreover, the focus of voluntourism or the voluntourist centers on the individual and the impetus of privilege that enables travel of this sort. The phenomenon of voluntourism emerged as a relatively new concept in the United States in the 1990s due to increased opportunities for and facility of accessing international travel. “While volunteering and service were undertaken in a wide variety of contexts, short trips abroad had their own appeal, resulting from an impulse for global engagement, a form of ritual passage to global citizenship, and maybe a new form of adventure” ([4], 259). Occhipinti highlights motivations that extend beyond those of the altruistic medical professional or student to engage in service to underscore a personal need for global engagement, a perceived rite of passage, and/or sense of adventure. Healthcare professionals may express, “this is something I have always wanted to do”; “I want to help those less fortunate”; or “I’ve always wanted to travel to Guatemala.” While these motivations are not inherently bad or unethical, the focus of the experience and practice centers on oneself and may remain separate from the desire to effect meaningful change or provide needed care within the confines of a short stay. Consistent with the emphasis on the traveler, the perspectives and stories of the individuals and communities encountered are absent. In contrast, by describing the experience as an immersion, the focus shifts—even if ever so slightly—away from the self and toward the self in relationship with the other.

The use of short-term medical immersion (STMI) throughout this essay points to the actions in which participants should be engaged, medicine and immersion. Immersion in this regard points to the importance of learning from and participating in the life of the host community, learning about the factors and structures that define and impact daily life, the resources that are available to the community, historical successes and struggles, key motivators for positive development, and identification of barriers or antagonists to access or progress. In short, observing the lived realities in a particular context through exploration of the social determinants of health centers on learning, listening, and adapting to the host community.



Immersion also indicates a level of commitment on the part of the guest “volunteer” to the community itself. Immersion requires intentionality on the part of the participant in order to engage in a positive learning experience that has lasting effects, both in the partnership with the host community and lasting effects in the broader realm of ethical global engagement.

Ventres and Wilson offer five attitudes that contribute to a positive service-learning experience, of which STMI would serve as one variety. They describe the five goals for participants as open-mindedness, humility, generosity, patience, and excellence [6]. One common thread among these characteristics is that each demands the interaction and the recognition of the purpose of the STMI and that “success” can only be realized with individuals from the host community. Thus, while voluntourism places the accent on the individual traveling, characteristics for success of any short-term experience needs to emphasize the shared benefits to both the guest and the host.

The benefits of STMIs, when done well, can occur in both the personal and social realm. Inevitably there is always some personal benefit, the most significant benefit may be a recognition of shared humanity or the recognition of global citizenship. While these benefits alone prove insufficient for STMIs, increasing the number of informed persons who are better able to identify the needs of the world and feel moved or called to respond is a step in the right direction. However, too often this is where the consideration of benefits focuses disproportionately on the guest participants and fails to prioritize the social and lasting benefit with the host community.

The foundation of any successful and ethical STMI starts with an other-centered disposition of the individual preparing for the experience while at the same time considering the communal effect that the STMI may have. Yet, even with the best of dispositions, ethical challenges still arise. Physician and educator Jane Philpott offers a helpful framework for understanding the motivations that lead to participation in global health initiatives that encourage the participant to assess honestly personal and professional motivations and to divide these motivations into three categories: motivations to which I aspire, motivations I can tolerate, and motivations I would rather suppress [7].

Categorizing individual motivations in this way can offer an opportunity for self-reflection; however, preparation cannot stop with only individual reflection.

## **Ethical Frameworks for STMI**

An adequate ethical framework for STMIs requires the consideration of social, political, economic, racial, etc., factors that contribute to the perceived need for these experiences [3, 8, 9]. Many ethical paradigms for STMIs rely on global health and international research ethics frameworks. While these demonstrate the importance of valuing justice within vulnerable populations, STMIs raise broader ethical questions beyond balancing benefits and burdens on both the personal and

institutional level [8, 10]. Recent developments in the formation of curricula for STMIs have explored ways to prepare individual trainees and organizations for the complicated ethical and socio-ethical questions raised on STMIs.

Two of the more innovative ethical curricular guidelines have emerged from a collaboration between Johns Hopkins Berman Institute of Bioethics and the Stanford Center for Innovation in Global Health and another initiative developed by the Catholic Health Association (CHA). The Johns Hopkins and Stanford collaboration highlights the importance of trainee education, while CHA focuses on organizational preparation and evaluation. Both models offer ethical paradigms that allow participants to consider the impact that these programs might have on oneself and the communities to which one travels.

The “Ethical Challenges in Short-term Global Health Training” curriculum launched in 2011, utilizes case-based scenarios in order to increase the awareness of ethical issues in STMI and begin to surface some strategies for addressing these challenges ([11] available for free at <http://ethicsandglobalhealth.org>). Too often, the challenges of short-term global health initiatives focus on the “doing” aspect of the program. Time, preparation, and money are spent on supplies and travel arrangements to ensure everything is in place for those traveling to the host site. While not minimizing the logistics of STMI, these topics represent a small portion of the preparation needed and only begin to surface some of the ethical complexities.

The trainee curriculum takes seriously the intersecting ethical responsibilities of trainees and the host community through ten cases that concentrate on trainee behavior, establishing a broader context for short-term programming, and research [11]. The cases covered in trainee behavior focus on developing the professional and ethical expectations of individuals participating in STMI. The ten cases clearly highlight the personal level of ethical responsibility—not exceeding one’s level of training, personal safety—from more social ethics questions, e.g., developing cultural understanding and assessing benefits for sustainability. These four examples highlight some of the temptations involved in STMIs when the preparation centers on individual activities. Trainees may be quick to dismiss the cultural framework in which they are working or perceive the work that they are doing as always of great benefit to the recipient.

When providing treatment in a medical immersion, global health trainees may be faced with the possibility of participating in a procedure they are untrained for or to consider research that may cause unnecessary burdens or yield comparably little benefit to the local community. The case studies prepare trainees for these real possibilities and take into consideration added ethical consideration when working with vulnerable patients or research subjects. The group of cases focusing on research guides trainees through the process of selecting a research project and informed consent. Chief among the concerns is the power dynamics and cultural humility needed to engage research and responsible patient care in LMIC. Communities may feel an obligation to participate because of the services being provided. Therefore, it is important not only to understand the ethical dos and don’ts but to consider the broader context of STMIs.

The third component of the ethical challenges curriculum explores the context for short-term programs. The modules ask questions that encourage trainees to explore distributive justice through themes such as recognizing burdens and shifting resources. Too often the conversation around trainees focuses on, what are “we” going to do, without considering the effects of what is being done. By raising broader cultural and resource allocation questions, trainees are asked to question the totality of the experience by “addressing ‘ancillary benefits’ and the role of sustainability and discerning what are “appropriate” benefits during STMIs both for the guest and hosts. In this regard, the curriculum encourages trainees to consider the wide range of stakeholders inclusive of the local and global community. The strength of this model lends itself to ongoing conversation through the use of case-based discussions and reflection on the complexities of short-term global health experiences on an individual basis. Beginning a conversation around ethics before travel can raise important questions for consideration, which hopefully impacts the action and mind-set of the trainee during the experience. The process of ethical training through the “Ethical Challenges in Short-Term Global Health Training” website emphasizes the role of the individual in thinking through for themselves the layers of professional and social responsibilities with which one ought to enter into a STMI, reiterating that participation in global health, no matter how brief, is necessarily situated in a global context. While the Johns Hopkins and Stanford collaborative focuses on the role of the individual, the model offered by the Catholic Health Association draws the attention to the ethical considerations needed at the organizational level.

Catholic Health Association’s “Short-Term Medical Mission Trips: Recommendations for Practice” develops a training and reflection model grounded in global mission of Catholic healthcare and focuses on organizational responsibility to prepare individuals for STMIs. CHA is a member-based organization for Catholic healthcare organizations that offers support in key strategic areas: mission, ethics, leadership formation, sponsorship, health reform, advocacy, community benefit, and international outreach [12]. As part of their development of resources for international outreach, of which STMI is one of those dimensions, CHA developed a two-phase survey in which data was collected from both global health trainees and practitioners from the United States and host organizations in LMICs. Phase I received responses from over 500 CHA members, while the phase II elicited responses from over 80 hosting organizations in LMICs. From the results of these two surveys, a recommendation of practices for STMIs emerged.

The subsequent recommendations of practice developed by CHA draw on a practice of pre-experience assessment and analysis, on-site practice, and a period of evaluation and reflection following each STMI. Before each STMI, CHA encourages a practice of pre-trip assessment that focuses on motivation, partner needs, and honest dialogue between the host and the guest organization to ensure that the motivations for receiving and sending a trip are compatible. These evaluative components comprise elements of pre-assessment for the guest organization.

While motivation provides one of the factors for consideration, another equally important aspect is ensuring that needs, including financial, of the host community can reasonably be met by the guest organization and that such arrangements prove mutually beneficial. Self-assessment of the organization's motivations and expectations prior to entering into a partnership are essential. The desire to participate in a STMI partnership requires an exploration of the motives, expertise, and economic reality of committing to an organization. The financial perspective of the guest organization, however, can only be assessed in partnership with a needs or resource assessment of the host community. If there is a monetary need that could offer support above and beyond that of medical expertise, clinical/surgical visits, or manual labor, then further assessment is required. These multifaceted assessments can reveal gaps between the needs of the host organization and the resources of the guest. CHA suggests that a "gap analysis/asset assessment" allows for clarifying the specific needs surfaced during the needs assessment and whether those match, or not, with the assets of the guest organization. In this step, one might consider a possibility for developing local capacity, rather than substitute for local infrastructures for healthcare. If moving forward, it is fundamental that the organizations maintain an open and honest dialogue should needs of the host community or deliverables of the guests shift unexpectedly.

Once the decision on the organizational level has been made to move forward, planning, preparation, selection of participants, and the actualization of those plans become the focus of the preparation. The planning and preparation requires establishing goals and objectives, which should raise questions of sustainability, needed resources to accomplish the goals, and discerning participants that will best help to realize those goals. When a plan is in place, then a selection of participants should begin. Often the participants are in place before the contemplation of the trip or goals of the STMI are established. This could have deleterious effects on the overall process.

Once upon the selection of and after an orientation has taken place, the implementation of the mutually established plan takes place on-site and should include continuous engagement with the host organization. It is not enough to merely execute the pre-established plan but to do so in a way that continues to assess and reflect on whether what the guest organization is doing meets the expectations of the host organization. Are the guests being culturally aware? Have unforeseen medical complications arisen? Are there ethical conflicts that raise questions about the ability to conduct medical care that upholds local and international standards of law and ethics? Even at the conclusion of the implementation phase, the STMI process has not concluded.

Following STMI, the organization and individual participants should reflect on the experience in order to lay groundwork for future collaborations but also to ensure that objectives and needs of the host community were met. As DeCamp and others have noted, these experiences lend themselves to research opportunities that stand to benefit both the guest and the host. CHA recommends that organizations

collectively identify metrics for assessment and communicate honestly about the effect a trip did, or did not, have. The recommended practice asks, “How have we ensured that our impact measures relate to quality outcomes and not the quantity of activities?” While the temptation may be to focus on quantifiable measures, such as the number of patients seen or procedures performed, the ultimate measure is the quality outcomes. Decades of global partnerships have reiterated that the standard for STMI must be the same quality and safety standards held in HIC healthcare organizations and in collaborations with LMIC organizations, as well.

The ethical framing of CHA and the “Ethical Challenges in Short-term Global Health Training” curriculum offers two important facets of preparation for trainees and organizations. They establish clear guidelines and a means to educate participants on ethical parameters and professional behavior. However, despite these ethical frameworks, many of the 6000 STMIs sent annually from the United States [2] may underestimate the humanistic and personal element to the practices in which they are engaging.

While an ethical framework is crucial for understanding expected behaviors and practices, underlying these ethical guidelines are moral frameworks. A moral framework speaks to the values evoked by the two proposed ethical guidelines for STMIs that address how human beings ought to relate to and care for one another. In each description there is a commitment to entering into this process together as equals with shared responsibilities. For example, honest and open communication about the injustices which negatively impact the community, perhaps framed in the context of the social determinants of health, can be helpful in establishing an ethical, what one does and does not do, but also a moral, a comprehensive vision that underlies one’s actions, framework for STMI. While the Hopkins-Stanford model offers no explicit moral grounding, CHA describes the moral framework of their training as model rooted in virtues. Although virtues prove valuable to the continued formation of the participant, they do not always lend themselves to a consideration of the other. A moral grounding for the ethical frameworks of STMI requires an initial consideration of the other, rather than first considering the self.

## **Recognition as a Moral Framework for STMI**

At the heart of the ethical guidelines for individuals and organizations participating in STMI exists a moral view that prioritizes collaboration with the host community and its members as equals. The ethical frameworks established for trainees and organizations point beyond a transactional or self-fulfilling purpose of STMI. These ethical frameworks, however, offer more than recommended practices; they offer a way of being with someone whom is unknown, a stranger.

STMI and the ethical framing of these experiences say something about the way human beings relate to one another. Taylor describes this form of relating to one another as the moral space that speaks to “the way we are with each other” [13]. Thus, one component of recognition that plays a crucial role in ethical guidelines

for STMI is aimed at articulating a vision of the way in which human beings ought to relate to one another. While many may express participating in an STMI as a “good thing to do,” it should also represent a form of resistance to the way that things are currently and a pledge to struggle for and with the other.

The struggle for recognition is a theme that pervades philosophical reflections on recognition theory and offers an understanding to the moral dynamics of STMI. Regardless of one’s motivations, STMI attempts—to varying degrees of success—to address global health inequality. Those that lack access to care bear a disproportionate burden of disease, and offering medical care is an attempt to correct that injustice. However, as has been noted, an ethical problem arises if one views going on in STMI as a routine delivery of medical services; it is a failure to encounter the human being in front of them.

Misrecognition in an STMI views the purpose of one’s trip through a series of actions, to perform surgeries, to make as many diagnoses as possible, to gain “real medical experience,” etc. “Misrecognition can inflict harm, can be a form of oppression, imprisoning someone in a false distorted and reduced mode of being” [1]. Thus, to instrumentalize the purpose of engaging in an STMI—even from a place of good intentions—can be undermined by missing the opportunity to encounter the patient and community as one from which one can learn, grow, and engage. Thus, recognition functions as a way in which social hierarchies can be further broken. In the upsetting of social hierarchies through STMI, recognition forms a foundational element for establishing a moral framework through which to explore the ethics of STMI and also to come to a deeper understanding of oneself in the face of the other.

Recognition reflects both an understanding of the other and can lead to a deeper understanding of oneself. However, both recognizing the other and the self exist as moral choices, not as an a priori given. Recognition, and its opposite of misrecognition, represents a moral choice for participants in STMI through which one can remain open to the possibility of being affected by the other. “In sum, recognition theory demonstrates that we are plural and vulnerable beings, and that we must be able to appear before others as peers in order to recognise and be recognised as subjects of justice – or, alternatively, as victims of injustice” ([14], 579). Recognition demands that participants in STMI see beyond the logistics of these experiences and begin to recognize patients and the community in which they live as integral to the one’s self-understanding and that of the larger community of which one is a part. While the ethical guidelines of STMI focus necessarily on ensuring that proper medication is received and that optimal resources are available and distributed fairly, these practices speak to the moral dimension of working for human dignity and equality.

The moral dimension of recognition focuses on the relational understanding that emerges in the midst of STMI in which the individual engages in a process of self-understanding and a deeper awareness of which one is in relationship to the other. Recognition, moreover, reinforces the ethical necessity of performing needs assessments and capacity building and points to the dignity and potentiality that each human being possesses [1]. Recognizing the dignity of the other requires a

concern beyond the immediate needs experienced in an STMI. Genuine recognition requires, “embodied agents living in dialogical conditions, inhabiting time in a specifically human way, that is, making sense of our lives as a story that connects the past which we have to our future projects” [15]. Thus, recognition during these brief experiences should lay the groundwork for an authentic assessment of the way “we ought to be” with one another and what practical steps can be taken to ensure mutual recognition between the guests and hosts. Understanding the moral framework within the guest and host relationship can serve as a means of reinforcing the function of ethical practices during STMI by emphasizing the importance of mutual recognition as equals with an opportunity for genuine friendship.

## **Conclusion: Cultivating Friendship**

John Swinton, a theologian and psychiatric nurse, describes friendship as foundational to the development of one’s self-identity. “Through friendships, we discover where we want to go in life, how we should relate with others and with God. Friends help us to recognize one another and the world” [16]. Entering into friendship with the communities and individuals encountered during STMI establishes values of caring, compassion, and interest in seeing the other succeed—hallmarks of friendship. Moreover, the act of friendship also functions as a form of resistance in that people from a place of social privilege genuinely recognize and offer support both for and with those who have been pushed to the margins of society by moving forward together in a way that privileges the perspective of those on the margins.

Cultivating friendships through STMI on the individual and institutional level requires taking seriously the perspective of those on the margins of society, a perspective considered too infrequently. Friendship functions as “a negotiated space between two parties who care for one another. It does not require that we collapse ourselves into the other in a way that smothers the self or forces it to take on unnatural shapes and forms. It does not mean that the other always takes priority over the needs of the self. Indeed, to offer meaningful friendship and hospitality requires that the self is a respected dimension of the relational process” [16]. Rather than presuming that the talents and resources of guests are needed and better than nothing, friendship opens lines of communication. It requires negotiating whether a particular trip fits with what a friend needs at the time and also with the talents that the other friend possesses. Friendship requires honesty both with oneself and with the others with whom one will interact and the moral disposition to reflect on one’s participation in STMI the ethical frameworks that guide them.

Understanding the purpose of STMI relative to the level of training of the participant can shift the structure of an STMI in order to minimize ethical barriers.

ers and maximize circumstances for learning and exchange. After two decades of international service immersion, Loyola University Chicago Health Sciences Division shifted the STMI experience to reduce the emphasis on the provision of medical care and to increase the emphasis on cultural humility, comprehensive contextual exposure, and broader applications of immersion learning toward lasting social engagement. Understanding the STMI at this preclinical level to come from a desire to build upon passion for and commitment to social justice on behalf of the participant, these experiences have transformed into an opportunity on how to enter into the culture of the host organization to learn about the particular context of the community, markers of success, barriers to navigate, and hopes for the future.

## References

1. Taylor C, Gutmann A. *Multiculturalism, examining the politics of recognition*. Princeton: Princeton University Press; 1994.
2. Maki J, Qualls M, White B, Kleefield S, Crone R. Health impact assessment and short-term medical missions: a methods study to evaluate quality of care. *BMC Health Serv Res*. 2008;8:121.
3. DeCamp M. Scrutinizing global short-term medical outreach. *Hastings Cent Rep*. 2007;37(6):21–3.
4. Occhipinti L. Not just tourists: short-term missionaries and voluntourism. *Hum Organ*. 2016;75(3):258–68.
5. Snyder J, Dharamsi S, Crooks V. Fly-By medical care: conceptualizing the global and local social responsibilities of medical tourists and physician voluntourists. *Glob Health*. 2011;7:6.
6. Ventres W, Wilson C. Beyond ethical and curricular guidelines in global health: Attitudinal development on international service-learning trips. *BMC Med Educ*. 2015;15:68.
7. Philpott J. Training for a global state of mind. *Virtual Mentor*. 2010;12(3):231–6.
8. Benatar SR, Daar AS, Singer PA. Global health ethics: the rationale for mutual caring. *Int Aff*. 2003;79(1):107–38.
9. Kittle N, McCarthy V. Teaching corner: raising the bar: ethical considerations of medical student preparation for short-term immersion experiences. *Bioeth Inq*. 2015;12:79.
10. Emanuel E. Benefits to host countries. In: Emanuel EJ, Grady C, Crouch RA, Lie RK, Miller FG, Wendler D, editors. *The Oxford textbook of clinical research ethics*. New York: Oxford University Press; 2010. p. 719–28.
11. Decamp M, Rodriguez J, Hecht S, Barry M, Sugarman J. An ethics curriculum for short-term global health trainees. *Glob Health*. 2013;9:5.
12. Catholic Health Association. *Guiding principles for conducting international health activities*: Catholic Health Association; 2015. January 7, 2017. <https://www.chausa.org/internationaloutreach/guiding-principles>.
13. Taylor C. Toward a hermeneutical conception of medicine: a conversation with Charles Taylor. *J Med Philos*. 2011;36(4):436–45.
14. Hayden P. The human right to health and the struggle for recognition. *Rev Int Stud*. 2012;38(3):579.
15. Taylor C. *The ethics of authenticity*. Cambridge: Harvard University Press; 1992.
16. Swinton J. *Raging with compassion: pastoral responses to the problem of evil*. Grand Rapids: William B. Eerdmans Pub; 2007.





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# Chapter 5

## Religious Foundations for Global Health Missions



Mary Katharine Deeley and Juan-Lorenzo Hinojosa

### Religion as a motivation for global health missions

*Then the king will say to those at his right hand, 'Come, you that are blessed by my Father, inherit the kingdom prepared for you from the foundation of the world; for I was hungry and you gave me food, I was thirsty and you gave me something to drink, I was a stranger and you welcomed me, I was naked and you gave me clothing, I was sick and you took care of me, I was in prison and you visited me.' Then the righteous will answer him, 'Lord, when was it that we saw you hungry and gave you food, or thirsty and gave you something to drink? And when was it that we saw you a stranger and welcomed you, or naked and gave you clothing? And when was it that we saw you sick or in prison and visited you?' And the king will answer them, 'Truly I tell you, just as you did it to one of the least of these who are members of my family, you did it to me.' – Matthew 25:34–40 (NRSV) [1]*

In a long ago and simpler time, the needs of the local community were well known by all in that community. Who was sick? Who had died? Who needed help? These were questions that any small-town neighbor could answer, and, as a rule, the community came together to render assistance both because they knew the person in question and because there was an unspoken bond in the community which we might loosely identify as “We take care of our own.” Churches, synagogues, and mosques held bake sales, clinics held blood drives, and neighbors baked and cooked meals for the family in question. In many places, particularly in rural areas and in faith communities, this still takes place.

In a later time, with the advent of telephones and copiers, neighboring towns and communities might be enlisted to share the burden of medical bills, the cost of research, and the care of the family. Every week now, via social media sites, handmade signs in stores, and emails from friends and neighbors, we are alerted

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to the needs of those who are sick and of the families that struggle to pay medical bills. And people give. If asked why, they might articulate a sense of responsibility because they have been blessed with good health and a less troubled life. They might say it is because “it was the right thing to do.” For many, these sentiments come out of a lifetime of religious and cultural training, which could not always be named but which shaped an attitude of caring for and sharing with those who had less.

In the latter part of the twentieth and the first part of the twenty-first century, we find ourselves in a world in which the internet, social media, and fast transportation have created “global villages.” We are aware of those who live in extreme poverty and illness not just in our town or the next one over but half a world away. Care for those in medical need is no longer the purview of private citizens and nonprofessionals. Increasingly, individuals partner with medical professionals to provide care across the globe. From large organizations like the *Red Cross* and *Doctors Without Borders*, who offer care across the world wherever there is need, to smaller medical missions like *Solidarity Bridge* in Chicago whose work is focused primarily in Bolivia, more and more people are recognizing that the medical care for the least and needy among us is a way of giving back and finding purpose. For people of faith, it is also a way of fulfilling religious commands like “Love God and love your neighbor.” And in places like the United States and Western Europe, it provides a way of acknowledging our first world privilege. We know that the medicine and medical techniques we enjoy are not available in many other parts of this global community. For most of us, the only proper way to appreciate what we have been given is by sharing with others.

But how do we do engage in global medical missions in such a way that we do not tie our care to the imposition of first world priorities and position ourselves as saviors of the world? How do we take into account the fact that, unlike that simpler time when neighbors cared for neighbors, we do not continue to live with the sick one in our midst? We don’t see them day to day and sense what further efforts might be needed. Is there a way to avoid becoming people who swoop in to render care and then leave a week later, returning to our comfortable lives while congratulating ourselves on a job well done? Now more than ever, we need a clear articulation of the reason we go on medical missions around the world to render the care needed in a way that will both continue to benefit those we visit and also continue to keep us mindful of what else needs to be done. This is where faith traditions may provide some help in exploring our own motivations and engaging us in a deeper understanding of mission and purpose. In laying out the spiritual foundations of global mission work, we recognize that nearly all traditions provide a framework for understanding mission, love, and charity. While we will bring in examples from Christian, Jewish, and Islamic traditions and scriptures, we will also draw many of our thoughts from the Catholic Social Teaching, in part because that is the background for both of us and in part because it lays out particular ways in which the broader injunction to “love your neighbor” is lived out.

In the latest Pew Research (May 12, 2015, *America's Changing Religious Landscape*, <http://www.pewforum.org/2015/05/12/americas-changing-religious-landscape/>), some 70% of Americans claim grounding in Christianity (all denominations), nearly 2% in Judaism, and 1% in Islam. The idea of sharing what we have might be a fairly universal trait, but the Pew Survey suggests that the vast majority of people in the United States would also find reasons for participation in medical missions in and through their faith traditions.

In the Christian New Testament, we find the following passage:

The next day John again was standing with two of his disciples, and as he watched Jesus walk by, he exclaimed, "Look, here is the Lamb of God!"

The two disciples heard him say this, and they followed Jesus. When Jesus turned and saw them following, he said to them, "What are you looking for?" They said to him, "Rabbi" (which translated means Teacher), "where are you staying?" He said to them, "Come and see." They came and saw where he was staying, and they remained with him that day. It was about four o'clock in the afternoon. – John 1:35–39 (NRSV)

Why do people go on mission? We begin our conversation on religious foundations by suggesting that the first reflection of those wanting to go on mission focuses on two questions, "Why" and "What am I looking for?" These questions are not asked just once but over and over again to plumb the depths of our hearts and motives. As the scriptural passage above suggests, we want to find out what attracts us to this particular activity. The answers will be varied: "I want to help; I have something to give; these people need help and I have the skills to do that." But when we go deeper than these, we find the question: "Why should I want to do those things?" Inevitably, such a question leads to the core of our humanity: "Because there is something significant, true, real, about helping others. There is something which makes me better when I do this." The invitation to "Come and see" compels us to move forward in our quest and in our mission.

## Service as a Central Component to Global Health Missions

For the adherents of a religious tradition, the answer is, more often than not, framed in God terms. There is a felt sense of God's call to serve, frequently articulated as a command in terms like these: "Because God commands that we care for others and that we visit the sick," some might say. Still others will allude to a command that we love our neighbor, even if that neighbor is half a world away. In fact, the religious tenets of Christians, Muslims, and Jews all demand that we help care for the marginalized and disadvantaged. Loving God and loving neighbor are two sides of the same coin. We cannot love one without loving the other. The passages from the sacred scripture and from the traditional writings point this out:

From the Christian Scriptures:

We love because he first loved us. Those who say, "I love God," and hate their brothers or sisters, are liars; for those who do not love a brother or sister whom they have seen, cannot love God whom they have not seen. – I John 4:19–20 (NRSV)

So if I, your Lord and Teacher, have washed your feet, you also ought to wash one another's feet. For I have set you an example, that you also should do as I have done to you. – John 13:14–15 (NRSV)

(See also the quote which headed this chapter.)

In Islam and Judaism, the injunctions to care for the sick and to love are no less powerful:

Abu-Hurayrah (may God be pleased with him) said that God's messenger (may God's peace and blessings be upon him) said: "God, the Almighty and Glorious, says [to a servant] on the Day of Resurrection: 'O child of Adam! I was ill and you didn't visit me.' The servant asks: 'O Lord, how can I visit You when You are the Lord of the worlds?' God replies: 'Didn't you know that my servant so-and-so was ill and you didn't visit the servant? Do you know that had you had visited the servant, I would've rewarded you. God says, 'O child of Adam! I asked you for food and you didn't feed me.' The slave asks, 'O Lord! How can I feed You when You are the Lord of the worlds?' God replies: 'Didn't you not know that my servant so-and-so asked you for food and you didn't feed the servant? Do you know that had you fed the servant I would've rewarded you? God says, 'O child of Adam! I asked you to give me something to drink and you refused.' The servant asks: 'O Lord! How can I give you something to drink when You are the Lord of the Worlds?' God replies: 'Didn't you know that my servant so-and-so asked you for something to drink and you refused? Do you know that had you given the servant something to drink, I would've rewarded you?'" – [2]

...but you shall love your neighbor as yourself: I am the Lord. – Lev 19:18b (NRSV)

Rab said: He who visits the sick will be delivered from the punishments of Gehenna, for it is written, Blessed is he that considereth the poor: the Lord will deliver him in the day of evil. "The poor" [dal] means none but the sick, as it is written, He will cut me off from pining sickness [mi-dalah]... – Talmud Nedarim 40a [3]

R. Hama, son of R. Hanina, further said: What means the text: Ye shall walk after the Lord your God? Is it, then, possible for a human being to walk after the Shechinah; for has it not been said: For the Lord thy God is a devouring fire? But [the meaning is] to walk after the attributes of the Holy One, blessed be He. As He clothes the naked, for it is written: And the Lord God made for Adam and for his wife coats of skin, and clothed them, so do thou also clothe the naked. The Holy One, blessed be He, visited the sick, for it is written: And the Lord appeared unto him by the oaks of Mamre, so do thou also visit the sick. The Holy One, blessed be He, comforted mourners, for it is written: And it came to pass after the death of Abraham, that God blessed Isaac his son, so do thou also comfort mourners. The Holy one, blessed be He, buried the dead, for it is written: And He buried him in the valley, so do thou also bury the dead. – [4] Talmud Sotah 14a

Besides the injunction to care for and love the other, the identification of God and/or Christ with the one who is sick or imprisoned suggests another dimension of mission work – that of *solidarity*. Just as God becomes identified with the poor, sick, and hungry ("whatever you did to the least of these you did to me"), we become united in a common humanity with those we serve and by extension one with the Holy One who guides our work. Solidarity speaks to the powerful reality of the interrelationship and interconnectivity of all people. In Christian tradition, we are said to be in communion with one another and with God. In addition, in multiple other traditions, God freely identifies God's self with those in need. God loves them and all creation. By extension, God impels us to love them as well which demands something more than a "hit and run" charity. It demands a relationship built up, cared for, and leaving all parties, both missionaries and those they serve, better than

they were before. The idea of solidarity (if not the word) can be found in various passages in the Hebrew and Christian scriptures where it is often expressed in terms of righteousness, love, justice, and seeking the good of the other:

For the sake of my relatives and friends, I will say, "Peace be within you."

For the sake of the house of the Lord our God, I will seek your good. – Psalm 122:7–8

These are the things that you shall do: Speak the truth to one another, render in your gates judgments that are true and make for peace. – Zechariah 8:16

He has told you, O mortal, what is good; and what does the Lord require of you but to do justice, and to love kindness, and to walk humbly with your God? – Micah 6:8

Owe no one anything, except to love one another; for the one who loves another has fulfilled the law. The commandments, "You shall not commit adultery; You shall not murder; You shall not steal; You shall not covet"; and any other commandment, are summed up in this word, "Love your neighbor as yourself." Love does no wrong to a neighbor; therefore, love is the fulfilling of the law. Living rightly means to love one another. – Romans 13:8–10

If one member [of the body] suffers, all suffer together with it; if one member is honored, all rejoice together with it. – 1 Corinthians 12:26

In his encyclical, *Sollicitudo Rei Socialis (On Social Concern)*, Pope St. John Paul II laid out the understanding of solidarity and added to the compendium of Catholic Social Teaching:

[Solidarity] then is not a feeling of vague compassion or shallow distress at the misfortunes of so many people, both near and far. On the contrary, it is a firm and persevering determination to commit oneself to the common good; that is to say to the good of all and of each individual, because we are all really responsible for all... a commitment to the good of one's neighbor with the readiness, in the gospel sense, to "lose oneself" for the sake of the other instead of exploiting him, and to "serve him" instead of oppressing him for one's own advantage – (cf. Mt 10:40–42; 20:25; Mk 10:42–45; Lk 22:25–27) [5].

Thus, solidarity is a connection between persons in which each seeks the good of the other. Solidarity in mission work combines two elements: *charity* and *justice*. Charity takes its root from the Latin *caritas* which means love. Many people think of charity as philanthropic giving – a sharing of material wealth – and there can be an element of this. But religious men and women first experience God's love in creation, in the giving of God's commandments and the raising up of prophets, and, for Christians, in the divine self-sacrifice of Christ on the cross for the sake of the world. Further, people of faith understand that in our creation, we were filled with the love of God and love, by its very nature, reaches out toward others. What we come to see when we are called to an act of charity is love in action. At its root charity is about a loving relationship, one which encourages each person in the relationship to be shaped by the other, to learn from one another, and to acknowledge and appreciate the gifts that each brings to the relationship. Solidarity seeks to express the reality of true communion with another by joining with the other, loving them, learning from them, seeing them, and, if need be, suffering with them. Our response to God's love and solidarity with us is to live in love and solidarity with others. It is the mark of discipleship – following the master.

Solidarity is also an expression of justice. In Roman Catholic social teaching, justice may be understood as both distributive and social. Distributive justice refers

to the fact that the goods of the earth (such as medical care) are not just for us and ours but are meant for all and that we have a duty to share them.

Interdependence must be transformed into solidarity, based upon the principle that the goods of creation are meant for all. That which human industry produces through the processing of raw materials, with the contribution of work, must serve equally for the good of all... – [6]

Distributive justice suggests that the human community, and each one of us, has a responsibility to attend to the individual in serious need. This sense of sharing is frequently at the heart of mission efforts. Many people, whether religious or not, understand who has more and who has less. The desire to share what we have with those who do not have as much is a noble impulse and, to the religious person, a grace of God.

On the other hand, social justice takes its cue from the biblical notion of God's "preferential option for the poor." Throughout the Hebrew Bible and Christian New Testament, God lifts up those who are lowly, suffering, poor, oppressed, and imprisoned (see Ex 1–15, Is 42:5–9; Lk 40:46–55; and the Psalms *passim*). Caring for these disenfranchised is also the work of the people of God. Social justice requires a conversion of mind and heart that allows us to see the unjust structures (in religious terms: structures of sin) which keep groups of people disenfranchised and in need whether in our own communities or around the world. As an example, in the United States, an unspoken work ethic suggests that if someone works hard enough, he or she would be successful. By itself such an ethic is not bad, but it blinded the society in general from seeing that our social structures prevented many groups of people over centuries from achieving success through hard work. Rather than address the underlying unjust structures, people assumed that the groups in question just weren't working hard enough. A similar cultural blindness can affect those who go on mission trips today. If our motives for going on the trip center on giving us an experience of "doing good" in a backward society or "saving them" from their plight, we will not achieve solidarity with those we serve. Instead, we will hold ourselves above them, never questioning the structures which may prevent them from having the medical care they need or the methods we use which may keep them dependent on the privileged for what care they have. Perhaps more seriously, we will not open ourselves to learn from them or be loved by them. We will walk away unchanged by the encounter, the very antithesis of solidarity.

Solidarity, with its twin elements of charity and justice, brings all the elements of faith-based mission work into sharp relief. Solidarity begins with asking what we are looking for when we go on mission. Our stance is one of expectancy and open searching. God invites us to come and see. If we go on mission out of an ego need or a compulsive or disordered affection, we will not receive what our heart longs for – God's revelation in and through the poor and the other. As God is in solidarity with humankind, so we are called to embrace the same reality. Those we serve are indeed individuals and families, but they are also in the presence of God. In Christian terms, they are Christ. "What are we looking for? When we go on mission, we are responding to that question with an action. We are looking for a way to be one with one another and with God; we are looking to serve God and others, to be "a person for others" as the Jesuits would say. To be in solidarity is to know ourselves as connected to God and each other in such a way that we are compelled to reach out in

action to meet our neighbor's need. Solidarity means freely giving of our giftedness, talent, and financial reserves to meet the critical needs of a hurting world.

We began with that question, "What are you looking for?" Jesus responded to the disciples and to us by saying: "Come and see." What will we see once we have gone on mission? For those not part of a faith tradition, there may be a feeling of fulfillment and satisfaction. "It changed my life" is a frequent response. "I want to go back" is another. Those who practice a faith tradition regularly give both these responses, but they often articulate a third response best described as a sense of being called. The word is "vocation," which draws its meaning from the Latin word *vocare* meaning "to call." The monotheistic faith traditions, particularly, inculcate a sense of vocation in their followers. In more traditional understanding, vocations might be particular, like becoming a priest or entering into marriage. The Roman Catholic Tradition saw these two as so important it raised them to the status of sacraments. In more recent times, most traditions, including Roman Catholicism, have begun to understand a more general sense of the word – to hear what God is calling us to do and to respond in freedom and joy. In the religious sense, vocation is a movement of the heart which seeks to respond to the mystery of being alive. "What am I here for? Why was I created?" The question gets asked in many ways. From a faith perspective, the answer involves understanding that God created us in love and calls us to follow. To follow God includes loving others and that leads us to caring for and living in solidarity with all people. Vocation is not only about what we do but about the way we live and the people with whom we choose to live and work. It involves passion, joy, and challenge. No two people are called in exactly the same way. Vocation does not look the same, even in the same field.

Our individual vocations combine with our unique giftedness to direct us toward particular ways of responding. In his first letter to the Corinthians, the apostle Paul puts it this way:

And God has appointed in the church first apostles, second prophets, third teachers; then deeds of power, then gifts of healing, forms of assistance, forms of leadership, various kinds of tongues. Are all apostles? Are all prophets? Are all teachers? Do all work miracles? Do all possess gifts of healing? Do all speak in tongues? Do all interpret? –I Cor 12:28

Paul understands that our vocations are as different as we are.

For medical professionals, translators, and ministers who have discerned the vocation to be healers and helpers of the mind and spirit and are doing that already, global medical missions present one way of living into their vocations. Each person on mission has particular gifts for healing, care, compassion, and empathy and joins them with the necessary skills in surgery, medicine, spiritual counseling, and translating to meet the needs of the community in which they serve. It is critical to remember that these gifts and skills which were already recognized when the missionaries entered into their chosen life work, grow, and deepen through medical missions. The participants use their gifts in ways that enable them to be in solidarity with the poor of the world. Of course, no individual or group can meet every need, and so, through prayer and conversation, we choose the place and mission that best uses our energy, effort, and gifts. Where might we be of best use? When we choose to go on global missions, we explore and exercise the dynamic between our vocation and our gifts. Ideally, both individuals and groups practice this kind of discernment.



The vocation to bring healing and hope to the people we encounter means using our talents, strengths, and gifts in the service of all we meet and in the name of the God who created us. When we do have the opportunity to move outside the familiar confines of homes, hospitals, clinics, and workplaces and into a different place, no two people will respond in exactly the same way or do exactly the same things. Rather, we will find in these missions the opportunity to teach and to learn; to bring our own gifts to serve and open ourselves to being served by the gifts of others; to know that we will be shaped by those we serve as surely as we might shape them; and to find in our vocation what it means to grow into the people God intended us to be. Finally we loop the understanding of vocation back to the notion of solidarity. To use our gifts to their fullest, we must come in the spirit of solidarity and mutuality, giving and receiving from one another whether young or old, sick or well, healer or helper, and moved by faith or moved by human ideals.

Vocation and gift come together in the work we choose and the life we lead. Mission work is a particular and, for the religious person, a holy deepening of both these things. For those doing global mission work, each opportunity allows us to respond to the mystery of our own lives by using the best of what we have been given to serve those in need. Mission is a participation in God's project. It includes a conviction that we are sent and are part of something greater than ourselves. It is done in context of community and in such a way that we open our eyes to the injustice of the world and what we might do to correct that. We learn from those we serve and we love them in mutual affection. What do we see? We see ourselves in communion with others. We see all of us in communion with God.

The religious foundations of global mission rest on certain principles of faith which cannot be proven but are nonetheless true. First, all people are created by God and equal in God's sight; therefore all people are deserving of dignity and a share of the gifts God has given. Second, God calls all people to participate in creation by using the gifts they have been given in the best way possible. Everyone has something to offer and something to receive from one another, and so we work together to find ways of sharing God's gifts and the world's goods with all who have need. For some, this call will find its articulation in medical mission work in unfamiliar territory. The successful mission draws out the faith-based principles and fosters a sense of solidarity with those served which results in mutual partnership, teaching and learning from one another. Thus, these religious foundations enable global missions to build relationships, to seek ways to engage other entities and people in the cause of justice, to relieve suffering and the inequities of the world, and, above all, to become an example of love and discipleship in action.

## References

1. [Scripture quotations are from] New Revised Standard Version Bible, copyright © 1989 National Council of the Churches of Christ in the United States of America. Used by permission. All rights reserved worldwide.
2. Hadith #964. 1000 Qudsi Hadiths: An Encyclopedia of Divine Sayings" Arabic Virtual Translation Center (CreateSpace Independent Publishing Platform 2012 p. 644) used by permission.

3. Soncino Babylonian Talmud, Rev. A. Cohen, translation and notes, Rabbi Dr. I Epstein, ed. Tractate Nedarim 40a. Public Domain.
4. Ibid, Tractate Sotah 14a. Public Domain.
5. St. Pope John Paul II Sollicitudo Rei Socialis (On Social Concern) [http://w2.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf\\_jp-ii\\_enc\\_30121987\\_sollicitudo-rei-socialis.html](http://w2.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_30121987_sollicitudo-rei-socialis.html) V/#38 ©Libreria Editrice Vaticana used by permission.
6. Ibid. V/#39.



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# Chapter 6

## Professionalism in Global Health



**William Agbor-Baiyee**

**Go Softly**

*Go softly*

*Into your day*

*As it dawns.*

*Talk to your neighbor.*

*Fight against malice.*

*Fortify your spirit.*

*Go softly*

*into the night*

*as it falls.*

*Sleep gently.*

*Dream warmly.*

*Be content.*

*Go softly*

*into your infinity*

*as it beckons.*

*Listen to their story.*

*Share yours with them.*

*Find the lesson.*

*Go softly.*

*Sing to your mothers.*

*Sing to your fathers.*

*Sing to your children.*

*Go softly.*

*Dance to charity.*

*Dance to serenity.*

*Dance to delight.*

*Go softly.*

*Leave a gentle footprint.*

*Transform your world. – William Agbor-Baiyee*

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## Introduction

In recent years, health professionals and learners in high-income nations such as the United States are increasingly engaged in efforts to improve the health of developing nations around the world [1]. The term global health has been used by academic centers, especially in the United States, to describe their international efforts [2]. Different scholars have addressed issues central to the essence and scope of global health [3–5]. Beaglehole and Bonita defined global health as “collaborative transnational research and action for promoting health for all” [6]. Learners participating in global health electives report increased personal development and awareness of the social determinants of health [7]. These learners tend to be more culturally aware and are more likely to practice in primary care contexts and to serve multicultural and underserved populations [8, 9]. The calculated 5-year average for students who had a global health experience during medical school from 2011 to 2016 was 29.8% compared to 6.9% from 2003 to 2007 representing an average increase of 22.9%. The averages were derived from data reported in the 2007 and 2016 Graduation Questionnaire administered by the Association of American Medical Colleges [10, 11].

This chapter suggests a definition of professionalism in global health, addresses the problem of unprofessionalism and its typical determinants and consequences, as well as suggests strategies to enhance professionalism in global health. The following terms will be used throughout this chapter: (1) “host community,” where global health activity takes place; (2) “participant,” which refers to a global health volunteer, visitor, learner, or professional; and (3) “sponsor institution,” which refers to a structured program that sends global health participants to a host community.

As global health efforts increase [1], there is a concomitant need to promote professionalism in global health [12]. A number of definitions have been proposed for professionalism in medicine [13, 14]. For the purpose of this chapter, professionalism will be defined as “conducting oneself with integrity, goodwill, accountability, responsibility, and excellence in the service of humanity.”

Professionalism in global health may be understood within the framework of previous efforts to promote professionalism in medicine. In 1999, the Accreditation Council for Graduate Medical Education (ACGME) implemented general competencies that need to be demonstrated during residency or fellowship training of every medical specialty. Professionalism is one of the six ACGME competencies [15]. The American Board of Internal Medicine Foundation, the American College of Physicians Foundation, and the European Federation of Internal Medicine also introduced the Medical Professionalism Project (MPP) in 1999. The MPP published a Professionalism Charter framework in 2002 [16]. Other professional physician organizations have adopted the charter which defined three basic principles of professionalism as follows:

- Primacy of patient welfare – focuses on altruism, trust, and patient interest. The charter states that “Market forces, societal pressures, and administrative exigencies must not compromise this principle” [16].

- Patient autonomy – incorporates honesty with patients and the need to educate and empower patients to make appropriate medical decisions.
- Social justice – addresses the physicians’ societal contract and distributive justice. That is, consider the available resources and the needs of all patients while caring for the individual patient.

Building on the Physician Charter framework, new professionalism frameworks have been developed for some other societies [17–20]. These context-specific frameworks are based on the values of the society in which they were developed. For example, a professionalism framework for Japan is based on the virtues of the Bushido code [17].

## **Unprofessional Behavior Undermines Global Health**

Although healthcare is deficient in many parts of the world where global health activities take place, the people who live there have expectations of professional behavior in visiting participants. The sponsor institution also has expectations of professionalism in the participants they send to engage in global health. While most participants of global health are uniquely motivated, altruistic, and service oriented, unprofessional behavior by some participants remains a problem [12]. Who is responsible for the first year medical student who boasts and tweets about “surgeries” he/she performed during a summer global health experience in a South American village? Who should be held to account for several slides of pictures depicting people in destitution and disease posted on the personal Facebook account of a fourth year medical student who completed an elective global health experience in an African village? Who is responsible for the disparaging remarks about the food and living conditions by a second year medical student who has just completed a global health experience in an Asian village? Who should account for the student who prematurely departs from his/her global health assignment to go on a safari tour?

A global health experience does not only provide an opportunity for self-discovery and contribution by participants, but it is also a unique experience for those being visited. A global health visit may even assume additional sociocultural importance in the life of an isolated rural community. A participant may not fully appreciate the effect of his/her work in global health due to its short-term nature. As a global health experience unfolds, people in a host community examine the actions of global health participants and remember the effects of their actions. Sometimes the actions of global health visitors take the form of unprofessional behavior.

Unprofessional behavior has a way of lingering in the minds of human beings. The preparation efforts of global health participants should include reflection about the types of memories they would like to leave in a host community. Examples of unprofessional behavior during a global health experience are wide-ranging and may include attempting to or insisting on performing clinical procedures without

the prerequisite clinical training, taking and presenting only pictures of poverty and disease in a host community, tardiness, absenteeism, leaving early, disregarding the humanity of people in a host community, wearing inappropriate attire, being arrogant, being too demanding, demonstrating a condescending attitude, showing a disrespecting attitude, breaking local cultural norms, demonstrating exploitative behavior, being verbally abusive, being selfish, abandoning service assignment, showing lack of interest, and being drunk. Participants of global health must be educated about these behaviors before arriving in a host community.

## Typical Determinants of Unprofessional Behavior in Global Health

It is difficult to determine with certainty what could be responsible for a participant's unprofessional behavior during a global health experience. Three typical causes of unprofessional behavior in the context of global health are as follows.

### 1. *Questionable Motivations*

The decision to travel abroad in order to participate in a global health experience requires commitment, adaptability, and authenticity in order to ground the motivation of participants. Failure to be intentional about the motivations underlying the decision to participate in global health may produce disappointment and frustration. Four examples of questionable motivations to participate in a global health experience include the following:

- *Breaking clinical protocols:* Although clinical protocols are established to ensure good practice, there are examples of poorly planned and organized global experiences that result in low-quality healthcare [21]. Professionalism in global health should promote good clinical practice that places the interest of the patient at the center of care. Failure to do so would jeopardize the health of the host community. The motivation for global health is misplaced if a participant sees the global health experience as an opportunity to practice beyond his/her level of training. Clinical practice on people requires the relevant prerequisite clinical education.
- *Saving people in low-resource environments:* It is dangerous for a global health participant to hold the attitude that he/she is destined to save the destitute people in a low-resource community. A participant of global health should avoid feelings of guilt about his/her material wealth compared to the poverty of people in a host community. Direct experience with abject poverty during a global health experience may intensify these feelings contributing to a further sense of frustration and inaction. The people in a host community lived there before a global health experience and will continue to do so after the participants leave. While people in a host community live in a resourced-limited setting, their humanity is not validated by another human being from a wealthier environment. Is the relative value of a human being measured by his or her material wealth?

- *Beyond building a resume*: Global health work demands the best of intentions in its participants beyond building the resume. A participant of global health whose objective is to build his/her resume through global health is likely to be disappointed. Global health requires a deep-rooted passion for altruistic service to others. Seeing global health as challenging professional work may strengthen a participant's sense of meaning.
  - *Not Vacation Time*: Signing up for a global health experience is not taking time for a vacation. It is not a tourist trip. A participant may hold the misperception that taking time off during a global health experience is up to him/her and comes with no consequence. This perspective may be reinforced by a false sense of entitlement given that a participant is likely to pay for his/her global health experience. The time spent vacationing during a global health experience is time taken from providing healthcare in a host community. Vacationing during a scheduled global health activity thus may suggest a misplaced priority.
  - *Ethnocentric Disposition*: Another possible cause of lapse in professionalism by a global health participant is ethnocentrism. Ethnocentrism may cause some participants to demonstrate unprofessional behaviors such as disrespect and condescension toward individuals in a host community. It is a concern in contexts involving interethnic relations may involve subconscious assumptions of superiority. Ethnocentrism tends to be practiced when an individual evaluates and interprets another culture using his/her own cultural norms [22]. It is a biased attitude that one's ethnic group or culture is better than other ethnic groups or cultures and that the norms of one's ethnic or cultural group can be applied universally. This attitude can undermine the laudable aims to improve global health given that context and culture influence healthcare. Some practices that are appropriate in one cultural setting may not necessarily apply in another.
2. *Culture Shock*: Culture shock in global health is criticizing aspects of the host community's culture by a participant. Unprofessional behavior may be a symptom of such shock. Culture shock occurs when one moves to a different cultural environment such as another country with different cultural signs, norms, and traditions. The sudden loss of familiarity with one's signs, norms, and traditions results in personal disorientation [23]. Culture shock may progressively produce a sense of frustration, moodiness, and isolation. Without self-monitoring, these feelings may result in finding faults and disapproving of the host community.
  3. *Cultural Values*: A participant of global health may behave unprofessionally due to a lack of appreciation of the differences in cultural values. Cultural value differences can cause of a global health participant to unknowingly violate the cultural norms of a host community. For example, it is impolite for a global health participant from a high-income society to call elderly persons in a particular host community by their first names. Furthermore, a participant may misinterpret the hand gestures of individuals in a host community. Moreover, attitudes toward group versus individualistic orientation, relationship to authority, dress code, personal space, autonomy, aging, death, and morality vary between cultures and influence behavior.

## Consequences of Unprofessional Behavior in Global Health

Unprofessional behavior should be avoided because it undermines the humanistic and altruistic ends of global health. Below are three consequences of unprofessional behavior in global health.

1. *Causing Harm:* Having the relevant knowledge is essential to professionalism. Without adequate knowledge of uncommon diseases and the constrained options to pursue, common in low-resource settings, learners and health professionals may not be fully aware of the possibility of causing harm through their actions and inactions during a global health experience [24, 25]. Participants can also potentially cause significant harm in a global health host community when they are inadequately supervised [26, 27] and provide care beyond their level of training. This type of unprofessional behavior during a global health experience is unsafe. Providing incompetent care in a low-resource environment should not be interpreted as a better option compared to providing no healthcare services.
2. *Eroding Trust:* Unprofessional behavior during a global health experience has the potential to cause not only harm but also to erode trust. The relationship between a global health participant and the individuals he/she serves in a host community should be based on trust. A trusting relationship should professionally obligate a participant to place the well-being of those served above self-interest.
3. *Disengagement:* Professionalism in global health demands the engagement of altruistic passion for humanitarian service. This is in stark contrast to service for self-serving reasons that may compromise the ability to sustain interest during a challenging global health experience. Disengaged participants of global health displease the host community and serve as poor representatives of themselves and their sponsor institutions. A disengaged participant may demonstrate delinquent behavior such as tardiness, absenteeism, and inappropriate community activity during a global health experience.

## Strategies to Enhance Professional Behavior in Global Health

Four approaches to improve the professionalism of participants of global health include the following:

1. *Alignment of Expectations:* A global health experience may not proceed well due to a misalignment of expectations of the participants and the host community. Global health host communities vary from each other. It is important to understand the expectations of each global health host community. A sponsor institution should seriously consider the perspective of the host community and how a global health experience would improve health there. If there is a mismatch in expectations, then an adjustment needs to be made before launching a global



health experience. A participant of global health is expected to uphold the professional standards of his/her profession and sponsor institution.

2. *Selection of Participants:* Each sponsor institution has a responsibility to implement a process to select participants of global health. The selection process should include an application and an optional interview. Selection criteria should include at least motivation, talent, and service orientation. Selected candidates should be required to complete a predeparture orientation curriculum.
3. *Predeparture Orientation Curriculum:* With appropriate preparation, participants are capable of behaving professionally during a global health experience. The teaching of professionalism should largely be the responsibility of the sponsor institution. The orientation curriculum should provide basic skills that enhance the self-awareness of participants. The curriculum should broadly expose participants to the contextual resources and challenges inherent in the delivery of global health in a particular host community. It should address specific topics such as ethnocentrism, culture shock and cultural value differences, and professionalism, including effective communication during a global health experience. The curriculum content could be delivered using methods such as small group discussion using vignettes, role-play scenarios, panel discussion with students who have already participated in global health experiences with online supplemental material. The orientation may also include reflective writing exercises.
4. *Professionalism Honor Pledge:* Each sponsor institution should consider developing professionalism honor pledge that each participant signs promising to uphold the professional standards of his/her profession during a global health experience.

## Conclusions

Global health contributes to personal growth through greater cultural awareness, acquisition of new perspectives, and improvement in the quality of life in the communities served. As learners and professionals increasingly participate in global health experiences, there is a related need to enhance their professional conduct in order to safeguard the communities being served. Unprofessional behavior during a global health experience erodes the trust between a participant and host community as well as reflects poorly on the participant's profession and sponsor institution. It also undermines the humanistic and altruistic ends of global health.

If an individual is considering a decision to participate in global health in a resource limited setting, then he/she should consider the following questions: How do I expect to be treated during the global health experience? How will I treat others during the global health experience? Will I treat others with goodwill, fairness, and respect during a global health experience? How would I like to be remembered by the people served during a global health experience? How one answers these questions may influence one's professional conduct during a global health experience.

Participants of global health efforts should be reflective about the types of memories they leave in the host community where they offer global health. Participants of global health represent themselves and serve as ambassadors of their professions and sponsor institutions. To this end, unprofessional behavior during global health is a poor representation of the participant's profession and the sponsor institution.

The privilege of participating in a global health experience demands professionalism. This means conducting oneself with integrity, goodwill, accountability, responsibility, and excellence in the service of others.

## References

1. Battat R, Seidman G, Chadi N, Chanda MY, Nehme J, Hulme J, et al. Global health competencies and approaches in medical education: a literature review. *BMC Med Educ.* 2010;10:94.
2. Macfarlane SB, Jacobs M, Kaaya EE. In the name of global health: trends in academic institutions. *J Public Health Policy.* 2008;29(4):383–401.
3. Koplan JP, Bond TC, Merson MH, Reddy KS, et al. Towards a common definition of global health. *Lancet.* 2009;373(9679):1993–5.
4. Fried LP, Bentley ME, Buekens P, Burke DS, Frenk JJ, Klag MJ, et al. Global health is public health. *Lancet.* 2010;375(9714):535–7.
5. Harrar L. Definitions of global health – the 2005 PBS series *Rx for survival's* approach. *J Public Health Policy.* 2008;29:402–3.
6. Beaglehole R, Bonita R. What is global health? *Glob Health Action.* 2010;6:3. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2852240/>
7. Stys D, Hopman W, Carpenter J. What is the value of global health electives during medical school? *Med Teach.* 2013;35(3):209–18.
8. Thompson MJ, Huntington MK, Hunt D, Pinsky LE, Brodie JJ. Educational effects of international health electives on U.S. and Canadian medical students and residents: a literature review. *Acad Med.* 2003;78(3):342–7.
9. Godkin M, Savageau J. The effect of medical students' international experiences on attitudes toward serving underserved multicultural populations. *Fam Med.* 2003;35(4):273–8.
10. Association of American Medical Colleges. Medical school graduation questionnaire: 2016 all schools summary report. Washington, DC: Association of American Medical Colleges; 2007.
11. Association of American Medical Colleges. Medical school graduation questionnaire: 2016 all schools summary report. Washington, DC: Association of American Medical Colleges; 2016.
12. Ahn R, Tester K, Altawil Z, Burke T. The need for professional standards in global health. *AMA J Ethics.* 2015;17(5):456–60.
13. Kirk LM. Professionalism in medicine: definitions and considerations for teaching. *Proc (Bayl Univ Med Cent).* 2007;20(1):13–6.
14. Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA.* 2002;287(2):226–35.
15. American Council on Graduate Medical Education. Implementing milestones and clinical competency committees. Chicago: American Council on Graduate Medical Education; 2013. p. 4–5. Available from: <https://www.acgme.org/Portals/0/PDFs/ACGMEMilestones-CCC-AssessmentWebinar.pdf>
16. ABIM Foundation. American Board of Internal Medicine; ACP-ASIM Foundation. American College of Physicians-American Society of Internal Medicine; European Federation of Internal Medicine. Medical professionalism in the new millennium: a physician charter. *Ann Intern Med.* 2002;136(3):243–6.
17. Nishigori H, Harrison R, Busari J, Dorman T. Bushido and medical professionalism in Japan. *Acad Med.* 2014;89(4):560–3.

18. Ho MJ, Yu KH, Pan H, Norris JL, Liang YS, Li JN, et al. A tale of two cities: understanding the differences in medical professionalism between two Chinese cultural contexts. *Acad Med.* 2014;89(6):944–50.
19. Pan H, Norris JL, Liang YS, Li JN, Ho MJ. Building a professionalism framework for healthcare providers in China: a nominal group technique study. *Med Teach.* 2013;35(10):e1531–6.
20. Al-Eraky MM, Donkers J, Wajid G, van Merriënboer JJA. Delphi study of medical professionalism in Arabian countries: the four-gates model. *Med Teach.* 2014;36(Suppl 1):S8–16.
21. Roberts M. A piece of mind. *Duffle Bag Med JAMA.* 2006;295(13):1491–2.
22. Macionis JJ. Chapter 3: Culture. In: Macionis JJ, editor. *Society: the basics.* 12th ed. Upper Saddle River: Pearson Education; 2013.
23. Macionis JJ, Gerber LM. Chapter 3: Culture. In: Macionis JJ, Gerber LM, editors. *Sociology.* 7th ed. Toronto: Pearson Canada; 2010.
24. Crump JA, Sugarman J. Ethical consideration for short-term experiences by trainees in global health. *JAMA.* 2008;300(12):1456–8.
25. Green T, Green H, Scandlyn J, Kestler A. Perceptions of short-term medical volunteer work: a qualitative study in Guatemala. *Glob Health.* 2009;5:4.
26. Banatvala N, Doyal L. Knowing when to say “no” on the student elective. Students going on electives abroad need clinical guidelines. *BMJ.* 1998;316(7142):1404–5.
27. Rassiwal J, Vaduganathan M, Kupershtok M, Castillo FM, Evert J. Global health educational engagement – a tale of two models. *Acad Med.* 2013;88(11):1651–7.



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# Chapter 7

## Technical Factors in Telemedicine Adoption in Extreme Resource-Poor Countries



Olayele Adelakun and Robert Garcia

*Telemedicine...* "It allows us to connect a patient to a doctor and it allows s to erase time and distance which is really the miracle of telemedicine

– Jay Robbins, Director of Telemedicine Tift Regional Health System

### Introduction

This chapter discusses technical factors that influence telemedicine adoption in extreme resource-poor (ERP) countries. The adoption of telemedicine and the factors that influence decision-making can differ in ERP nations from more developed nations. Researchers, practitioners, and policy makers from more developed countries seeking to implement telemedicine programs in the developing world often take for granted differences in contextual factors between countries. While some of these factors can be political, social, and cultural, this chapter will describe additional technical factors that can influence telemedicine adoption.

While the medical community is increasingly embracing the use of telemedicine in developed countries, there are still factors that limit telemedicine adoption globally. There is an increase in the adoption of telemedicine. Developed countries such as the United States have seen an increase in telemedicine adoption [1, 2]. Growing use of telemedicine has led some global business analysts to project the telemedicine market to develop into a 66 billion USD industry by 2021 [3]. Despite this growth there are still factors that limit the widespread adoption of telemedicine [4].

The growth in the telemedicine market has been seen as a positive sign, particularly for the potential impact on increasing access to medical care in developing countries [5]. Telemedicine adoption has historically been viewed as a way to

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reduce costs and increase access to care [6]. While the benefits of telemedicine in a growing global market should signal an increase in opportunities for access to medical care, this isn't always the case. In some places the medical community can be reluctant or outright resistant to the adoption of telemedicine [7]. Further, more recent findings have challenged some of the previous assumptions about the benefits of telemedicine. For example, by surveying the literature, reviewers found that long-held assumptions about the cost benefits of telemedicine can actually vary based on context [8]. Contextual, sustainability, legal, and cultural factors are among the differences that influence telemedicine adoption between developed and developing countries [9].

In developing countries, there are many differences to consider, and to a certain extent, many of these challenges become even more significant in ERP nations. In many ERP nations, telemedicine adoption may be considered the only available option to providing needed medical services. Medical professionals in ERP nations may lack the training and equipment to perform many life-saving medical procedures [10]. Distances between care centers and the high cost of medical care may place medical care beyond the reach of many patients in ERP nations. To address these challenges, the perceived benefits that telemedicine provides make it an increasingly attractive solution. This is especially the case in many low- and middle-income countries where telemedicine is viewed as a means of improving access to medical care where there is a lack of professional services [9]. However, even in these contexts, the benefits of telemedicine can vary.

The variety of telemedicine services may make some more appropriate than others in ensuring the success of projects [11]. Among the methods in which telemedicine has been used in ERP nations is to connect medical personnel along with diagnostic and monitoring equipment from developed countries to centers that lack similar well-funded resources in developing countries. For instance, in philanthropic efforts universities and not-for-profit agencies often institute telemedicine programs and research to provide medical expertise in ERP nations. Some of these groups organize medical trips to provide these services. By connecting medical personnel in developed countries to those in ERP nations, these groups often attempt to use telemedicine to address the issues presented by the lack of resources. Some of the findings that will be discussed in this chapter are part of a similar philanthropic research effort conducted in Haiti.

This chapter will discuss some of the contextual challenges that were observed during the implementation of a telemedicine project in Haiti and relate the experiences to similar challenges in the literature. The discussion focuses mainly on telemedicine services provided between institutions as opposed to being provided directly to patients. Key findings from experiential data collected in the development of a telemedicine program in Haiti will be discussed. This study expands on our previous work that included sustainability as a factor and considers the need for steady IT infrastructure, comprehensive ease of use, information completeness, technical service quality, and a solid IT support/service system.

## Telemedicine Adoption

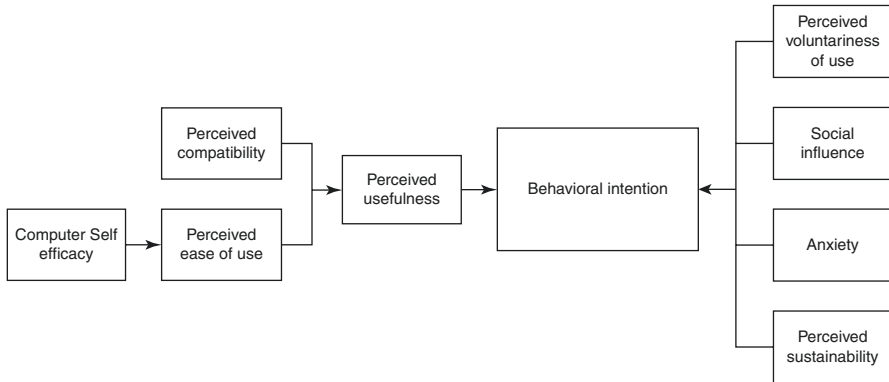
Telemedicine is a broad term that can encompass a variety of other terms such as telecardiology, telepathology, teledermatology, etc. [12]. Due to the lack of consensus on the terms' meaning, there are differing opinions on what telemedicine actually consists of. A broader discussion on the characteristics that define telemedicine is beyond the scope of this chapter. However, definitions of telemedicine center around four themes that include medical, technological, spatial, and benefit components [13]. Those interested in learning more about the evolution of the telemedicine terminology are encouraged to review the research conducted by Oh and Rizo [14] and Sood and Mbarika [13].

Telemedicine adoption has varied throughout the years. During the early years of telemedicine, there were concerns over its ability to successfully provide health services, education, and support [15, 16]. Because of the concerns from the medical community, adoption lagged. Issues such as liability, interstate licensing, insurance coverage, and payment policies served as some of the greatest barriers to early adoption [17].

However, the concerns over telemedicine adoption were not universally shared. Researchers found that views of telemedicine along with potential motivators for use varied among different stakeholders [18]. Research began to suggest that despite the concerns raised, there were a number of advantages for telemedicine adoption. For example, telemedicine could improve healthcare education along with access to and delivery of care [19]. More research findings began to demonstrate the real advantages of telemedicine. Among these are improving access to information, enhancing education and training, assisting in providing care where previously unavailable, improving access to services and the delivery of care, greater control over the quality of screening programs, and reducing costs for care [9, 11, 19–21]. Some studies challenged conventional thinking by showing that in certain contexts there are advantages for telemedicine over conventional medical approaches [20, 21].

Yet despite the potential advantages of telemedicine, there are still a number of issues faced by adopters [19]. Among the issues that can limit the adoption of telemedicine are governmental policies, resistance to change, and limited knowledge and skill [22]. Knowledge, skill, and readiness to move toward telemedicine can limit the adoption of telemedicine services [23]. In addition, environmental changes and funding can put the sustainability of telemedicine efforts at risk [10]. Adoption can also be impacted by the tools, applications, and equipment used to provide telemedicine services. Telemedicine usage can be inconvenient, driven by unreliable or inappropriate tools, and costly to access and implement due to high telecommunications requirements [24, 25]. These issues can create strong resistance toward adoption by both patients and practitioners.

In order to examine these issues and advantages, some researchers have attempted to model the adoption of telemedicine. The technology acceptance model (TAM), for instance, has been used by a number of researchers to explain accep-



**Fig. 7.1** Adoption model based on results by Adalakun and Kallio [10] and Kifle and Payton [32]

tance of telemedicine [26, 27]. However, the results can vary, and findings suggest that there are contextual components that impact user perceptions of telemedicine and their decision-making [26, 28]. Some research findings have demonstrated some of the influence of some of these contextual components. For example, researchers have shown that different provider groups using similar telemedicine services may not view adoption the same when used in different contexts [18, 29]. Further not all technologies may have the same impact on outcomes and may impact existing medical practices differently and may not always be considered in adoption models [30, 31].

Other contextual factors can include those specific to developing nations and extreme resource-poor (ERP) countries. Kifle and Payton [32] showed how contextual factors in Ethiopian telemedicine services could play a role in behavioral intention. Based on experiences in Haiti, researchers examined the use of this model and expanded it to include sustainability factors [10]. This model is shown in Fig. 7.1. The discussions in this chapter expand on previous studies for development in ERP countries by examining technical aspects of adoption.

## The Case Study in Haiti

In January 2010, Haiti suffered a devastating earthquake that disrupted an already fragile medical system. The earthquake led to a number of issues such as a lack of clean water, electricity, food, and an urgent need for medical services. Roadway and building infrastructure was also damaged during the earthquake making it difficult for Haitians to gain access to resources. Because of the extreme poverty rates in Haiti, recovery from the earthquake was an ongoing process.

Between January 2014 and August 2015, the lead author and other coinvestigators made several research trips to Haiti in order to implement a telemedicine service. The service was set up to connect a Haitian hospital to a university in the

United States. The study was financed through a university pilot grant. In January 2014, university researchers visited Haiti and identified a need for telemedicine services to address a lack of training availability. Researchers designed a program in which medical practitioners in the United States would provide both on-site and telemedicine training to Haitian medical teams. Training would be conducted through video and specialized software. Haitian staff members participating in the training would perform on-site wound care based on training received from US counterparts. US counterparts would also collaborate with Haitian medical staff on managing cases and receive reports on results.

During the implementation of the telemedicine services, researchers originally based their efforts on existing theories of adoption used in the United States. However, during the course of their work, researchers observed that there were differences between existing approaches and the on-ground realities in Haiti. Challenges faced in the implementation of telemedicine services in Haiti included a lack of equipment, poor Internet connectivity and infrastructure, a lack of stable electricity, and issues with funding.

A more thorough discussion of the project can be found in [10]. Based on experiences encountered in this case, some of the issues facing telemedicine adoption in developing and ERP nations will be discussed and recommendations provided in the following sections.

## **Technical Factors that Will Promote Telemedicine Adoption**

This section focuses on technical/system factors that promote the adoption of telemedicine in ERP countries. These factors are based on literature review and empirical findings from the telemedicine implementation project in Haiti. While the literature has covered many factors that promote the adoption of telemedicine, this paper focuses just on the technical factors. We have defined technical/system factors to include the following: (1) resources and infrastructure, (2) technical service quality, (3) end user support, (4) comprehensive ease of use, and (5) information completeness. These factors are technical in nature covering a wide range of things from application interface design to network architecture that support the telemedicine system. While this research understands that there are other factors that promote the adoption of telemedicine in ERP, we have decided to focus on the technical factors in this paper.

### **Resources and Infrastructure**

Among the challenges in implementing telemedicine services in ERP nations are the differences between resources and infrastructure. Other researchers discuss these as contextual factors [9]. However, some researchers consider contextual



factors as broad and can include different variables such as competition, age of organization, and size [33]. Because of the technical focus of this chapter, only resources and infrastructure in relationship to the technical aspects of telemedicine adoption in ERP countries are considered. In this text a distinction is made between resources and infrastructure. Resources are considered the components of a system such as computers, switches, routers, etc. [34]. Infrastructure is considered the set of shared IT resources that serves as the foundation for communication and implementation of business applications across organizations [35]. These will be discussed further in the following sections.

## ***Resources***

One of the main issues with access to telemedicine in developing countries is the access to computing resources. The lack of “material access” to computing resources is a common occurrence in many developing countries [36, 37]. For many in Haiti, access to computing and networking equipment can be either very limited or nonexistent. Access to equipment at hospitals can suffer due to the costs alone [38]. Government restrictions, regulations, delivery time, and secure access privileges also need to be considered.

For example, during researcher visits to Haiti, additional equipment was needed to set up network services. While Haitian medical partners were eager to work with US counterparts, the lack of available funding for trial projects is limiting. Using funds provided through a US research grant equipment and other resources would be purchased for the project. Initial thoughts were on purchasing the products in Haiti. However, the lack of knowledgeable staff on technical equipment requirements, lack of local vendors, along with delays on delivery, etc. made it preferable to order products directly in the United States.

In terms of considering purchases for telemedicine in developing nations, practitioners should consider where and how resource acquisition will occur in addition to the type of resources needed. Companies exporting products to different countries often have a number of legal requirements they have to fulfill as part of export regulations. In places where sanctions are in place, certain resources may not be available, and alternatives may have to be investigated. Further, companies often also have to undergo extensive internal processes that delay the delivery of different products.

Further the type of technology available for telemedicine projects may vary based the country. The distinct technical profile of each country may make some technologies and telemedicine approaches more appropriate than others. For instance, unlike in more developed nations where patients may have access to computers, many in ERP countries rely on mobile devices for their computing needs [39]. This may make telemedicine services for patients that rely on traditional computing devices unfeasible. Yet the same issues can apply to mobile services in some nations. Although more recent investigations are showing the feasibility of using

mobile devices for telemedicine, the actual ground truth may differ. While Haitians may have growing access to cellphones, the actual usage may differ from the usage in more developed nations. Many people in developing countries may use cellphones similar to landlines. In some places those who cannot directly afford cellphones may rent time to use one from a local vendor similar to pay phone usage. Even for those who own cellphones, the usage may vary due to data plans and connectivity [39].

## *Infrastructure*

Unlike in more developed nations, many developing nations may not have the infrastructure to support certain telemedicine initiatives. The success of telemedicine projects depends on the availability of certain infrastructure. Infrastructure can include organizational, funding, and technical requirements. This discussion will focus mainly on the technical infrastructure necessary to set up telemedicine services. Unlike other forms of medical technology, telemedicine services cannot function without the support of technical infrastructure.

### **Life Support Networks**

Critical infrastructure can be considered part of an interconnected network of dependencies. These dependencies can have impacts on the realization of other systems. Mili [40] describes many of these connected networks as life support networks. These networks allow the delivery of essential services such as water, electricity, etc. These can include electricity, natural gas and fuels, potable water and wastewater, telecommunications, and transportation.

In many developing countries, the lack of stability and reliability of these networks presents challenges. Many regions may suffer from rolling blackouts, for instance [41]. These blackouts may degrade the reliability of store and forward systems or disrupt real-time teleconferencing. Further in certain areas, this may limit the ability to provide cooling for key hardware resources that may be essential to telemedicine.

However, some infrastructure challenges may also serve as catalysts for telemedicine interventions. Many regions in the developing world may not have adequate transportation networks to and from medical institutions. In these cases, the ability to set up telemedicine services may provide critical access to care where otherwise unavailable.

Because of the variations in life support infrastructure, developers of telemedicine systems should consider the availability of resources in the system design. Life support infrastructure can inform both the need for telemedicine services and the requirements for implementation. For example, lack of transportation infrastructure can suggest the need for certain types of telemedicine services such as those that

allow remote patients to better connect with medical providers through conferencing. At the same time, however, places that lack developed transportation infrastructure may not have reliable wired access and may require the need for off-site setups or wireless network infrastructures.

## Telecommunications Networks

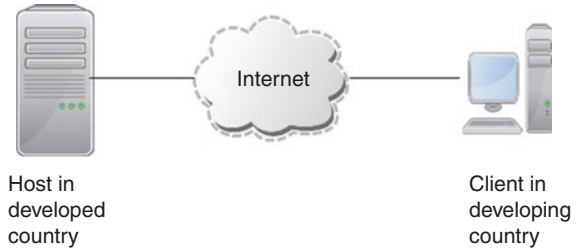
Among the major challenges to telemedicine services in developing countries can be the telecommunications infrastructures. Telecommunications infrastructure in developing nations can vary based on region. The lack of access to telecommunications can result from a variety of reasons. Challenges can include lack of research and development, the invisible hand of investment and policy, and lack of internet exchange points [42].

Some countries have only recently begun investing in network infrastructure, and this can present additional challenges. The relative infancy of telecommunications services in developing countries requires additional investigation into the type of regulations that govern services [43]. Regulations can impact not only the ability to connect to network services but issues for consideration such as privacy and security [44]. The lack of access to telecommunications infrastructure in many developing nations can also affect the relative affordability of services [45]. Unlike in developed nations where the infrastructure already exists to implement many network services, the lack of infrastructure can require additional investment to address. For example, in a place like the United States where an extensive internet backbone exists for broadband connections, it can be affordable to connect a new facility to the network. However, in places such as Haiti where infrastructure may have been destroyed from natural disasters or not have existed in the first place, these connections require additional investment or may not be achievable.

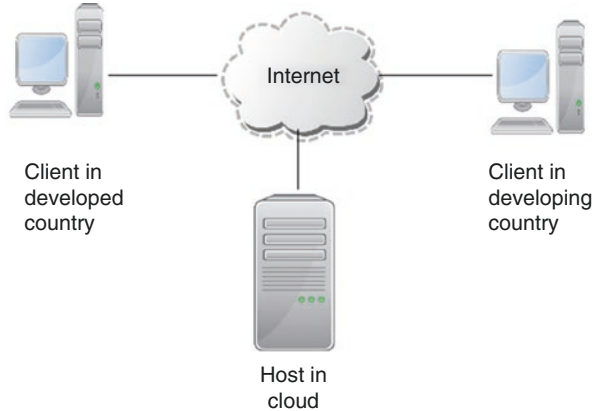
To overcome these challenges, many in developing nations are increasingly investing in wireless technologies. In some cases, the lack of existing telecommunications infrastructure may open up opportunities for investment in newer technologies. In ways this can allow developing countries to essentially leapfrog over neighbors in utilizing advanced services [5, 46]. Wireless technologies such as cellular technology are becoming increasingly common as alternatives to wired services in developing countries [47]. However, the bandwidth and coverage limitations of common mobile network technologies such as CDMA and GSM may limit their usage for certain telemedicine applications. Applications that require higher data throughput or distance from base stations may require alternatives. Some broadband alternatives that have been tested in practice include newer mobile services such as Worldwide Interoperability for Microwave Access (WiMAX), Wireless Fidelity (Wi-Fi) services, and very small aperture terminals (VSAT) [48].

The type of network infrastructure should be a key component of the design of the telemedicine service. Often in telemedicine projects, the host resources are provided through servers in more developed areas. In the cases when telemedicine services are developed between nations, the host of the telemedicine services is

**Fig. 7.2** Image showing typical distribution of telemedicine services



**Fig. 7.3** Model showing telemedicine services in cloud hosting environment



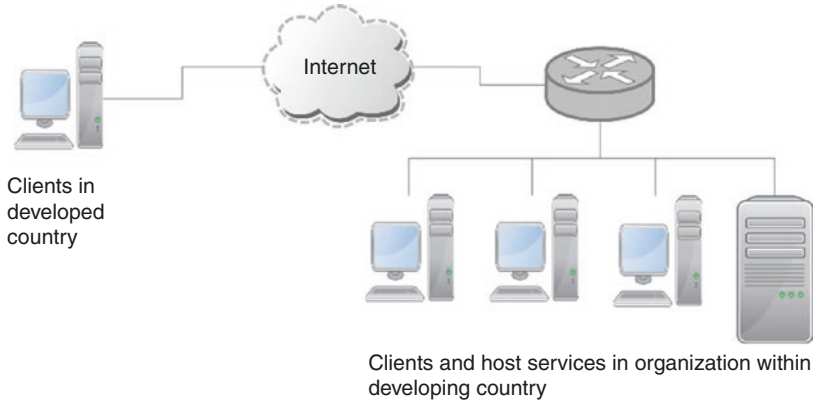
often placed in developed countries as opposed to the developing country. Figure 7.2 shows a typical telemedicine distribution network for ERP countries.

In this example the host of the telemedicine services is in a developed country, and the client accesses content by connecting to the host through the Internet. There can be a variety of reasons for this such as costs, network stability, security, etc. However, there are cases where this approach may not be ideal.

As opposed to hosting the server at a host site, another possible solution is to set up resources on cloud services. The advantage of cloud services is that issues faced by either partner may not directly impact the availability of resources. Figure 7.3 shows an example of this model.

While cloud services can provide a solution, often cloud services exist outside of the Haiti backbone network that connects Haiti to the larger Internet. Connections between the Haiti backbone network and the Internet backbone can fluctuate. This can cause connection issues that limit the ability to connect to cloud services within Haiti.

Even more connectivity between the organization and backbone network is not guaranteed. Due to network connectivity issues like these, often the ability to access resources outside of a medical institution in developing countries may be limited. Depending on the type of services required, connections to resources in developed countries may be limited, or bandwidth may be more critical within the organization than outside. Figure 7.4 shows another type of model in which the telemedicine services are hosted in the developing country.

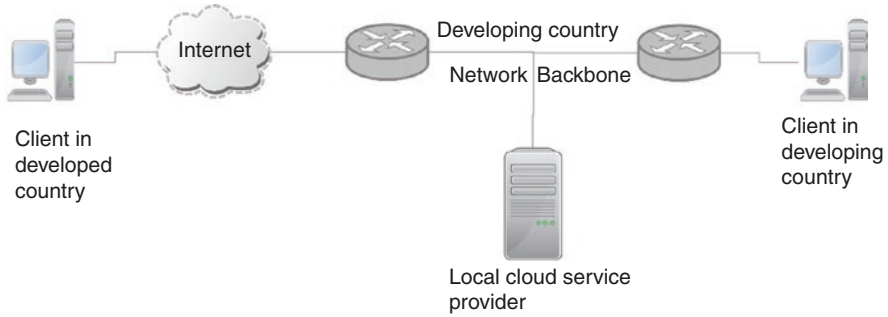


**Fig. 7.4** Showing model in which telemedicine server is hosted in developing country allowing both internal and external access

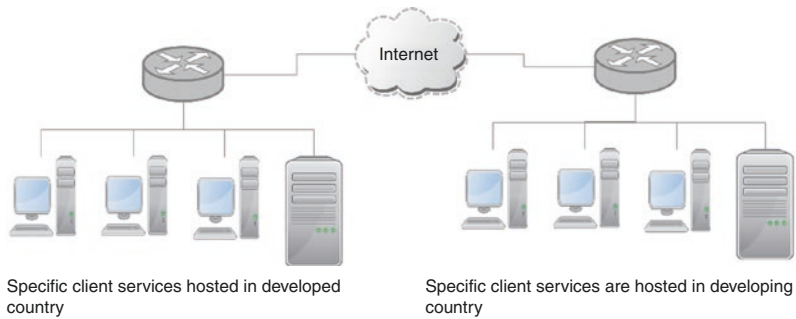
This model provides advantages in the case where critical or bandwidth heavy resources may be necessary in developing countries. For instance, part of the services provided to Haiti included a 3D modelling visualization tool for training. The tool was both process and data intensive. Having the services run on a remote site produced considerable lag and delay as large amounts of data needed to traverse the network into a low bandwidth connection. Further, at times in which network connectivity was an issue, partners in Haiti were unable to access training resources. A potential solution to this would be setting up the visualization tool on the local organization’s network. This would provide greater access to those within the Haiti medical institution while still providing access to remote trainers in the United States.

However, a disadvantage of this approach is that issues with network connectivity within the organization or from the backbone network to the institution will impact the remote client. Another alternative is to connect to telemedicine services using a local cloud service provider. For instance, some companies in developing countries are beginning to provide cloud services that include private services that can potentially be adopted by medical institutions [49]. If the local cloud services exist within the countries’ network backbone, then some of the connectivity issues will be limited for medical institutions in developing countries. This can provide an alternative to hosting the services within the local institution if connectivity to the countries backbone is not an issue and there are concerns about local hosting within the institution. Yet, this approach still suffers in the cases when connectivity to the countries’ Internet backbone is an issue. An example of this approach is shown in Fig. 7.5.

Another potential alternative is using a hybrid approach. As opposed to hosting all telemedicine services at one site, services can be divided between institutions based on need and existing infrastructure. For example, in the Haiti effort reports on training completion and progress were collected. While this data was not critical to



**Fig. 7.5** Showing model in which telemedicine server is hosted in developing country on national cloud



**Fig. 7.6** Showing hybrid model where telemedicine services are distributed between both developed and developing nations

the medical training conducted by Haitian partners, it was important for the research aspects of the study. However, the low bandwidth and priority requirements of text document reports could be transferred to a server in the United States with little issue. Even with connectivity issues, the data could be transferred during nonpeak hours or when connectivity was more stable. Yet the network connectivity issues could cause problems for researchers for on-demand access. In this case placing a server for reporting in the developed country would make sense. At the same time, the requirements of the 3D visualization tools for trainees that have high bandwidth requirements could present issues if hosted on a US server. As the US side did not require access to the training software, it would make little sense to host those services in the United States. Because of the different requirements, this could be a case where a hybrid model would be more appropriate. However, hybrid models can also present additional challenges in relation to costs, complexity, governance, and support allocation, among others. In addition, not all services can be broken down into different components. Hybrid approaches might be more appropriate when using best-of-breed solutions as opposed to integrated telemedicine solutions. The hybrid approach is shown in Fig. 7.6.

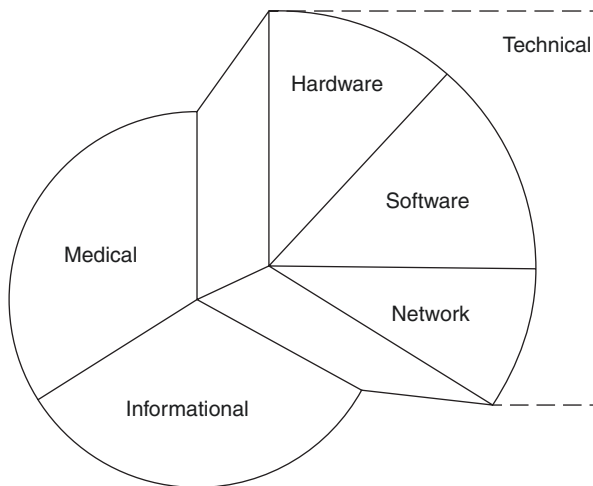
## Technical Service Quality

The user views of the quality of a telemedicine system can consist of multiple dimensions [50, 51]. The perceived quality of a telemedicine system can impact user perceptions and satisfaction with the end results. Unlike other medical technologies, telemedicine systems provide multiple services that a user has to evaluate. These services can include informational, medical, and technical. The technical services provided by a telemedicine system can be influenced based on the software, hardware, or underlying network infrastructure used. In the case of telemedicine in developing countries, one of the biggest challenges to technical service quality can be the underlying network infrastructure.

Figure 7.7 shows the relationship between these services. In the figure, the technical service is expanded to demonstrate the relationship between hardware, software, and network infrastructure to technical services. There are other components that can influence the quality of technical services that are not included such as support, net benefits, etc. Further the extent of the relationships is not considered. The illustration is mainly provided to view how these factors relate.

Access to quality telecommunications networks can vary. Some regions have little, if any, access to infrastructure that can provide telecommunications services [52]. In other places access can vary in terms of reliability and connectivity [53]. The reliability of systems can influence overall user perceptions of the quality of a telemedicine system [30, 51, 54].

In ERP countries such as Haiti, service quality might be one of the most important adoption and sustainability factors. For instance, during our implementation of telemedicine services in Haiti, researchers constantly ran into service issues



**Fig. 7.7** Showing three prime telemedicine services and expanded view of technical services quality considerations

with telecommunications networks. The connectivity and reliability issues made it impossible to deliver high-definition anatomy lectures by video to remote students. Issues such as network lag, low bandwidth, and service disruptions limited the ability to provide high-quality video lectures. These experiences are not unique. A report by the World Health Organization supports these views of challenges to telemedicine adoption. The report mentions issues such as unreliable Internet connectivity, limited bandwidth, and insufficient communication networks as presenting barriers for the adoption of telemedicine in developing countries [55].

For telemedicine implementations, the quality of service needs to be taken in relationship to the goals of the service. Some functions may not require as high-quality services as others. For instance, many store and forward applications can be designed in a way where data caches can be uploaded periodically when network resources are not in prime use. On the other hand, for real-time services such as real-time video monitoring, bandwidth becomes a critical consideration. Depending on the quality required for the monitoring, different adjustments have to be made to the design of the system.

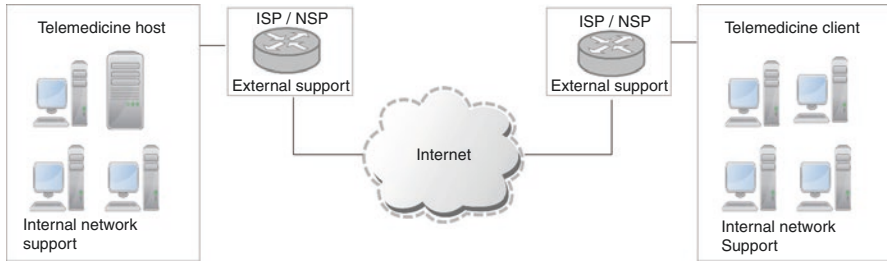
## End User Support

Among the factors that influence user satisfaction with telemedicine services is the perceived quality of user support [51]. Users of systems often have limited knowledge on the use or setup of systems, and therefore support is often required [56]. For telemedicine the type of needed support can vary based on the type of service provided. A telemedicine system that is entirely based in one host country will have different support requirements than one that is spread between nations or utilizes cloud services.

For many countries, particularly ERP nations, there are limited numbers of technical professionals that are available to implement or make use of network connectivity. Many developing nations do not have the trained workforce necessary to develop and maintain large telecommunications networks at reasonable costs for broader adoption [57]. Although policy makers may be determined to invest in telecommunications infrastructure, they may lack the knowledge of “best practices” and the trained workforce necessary [58]. To complicate matters more, many developing nations often have to compete with developed nations to maintain their talent and avoid the impacts of “brain drain” [59]. The lack of a trained technical workforce can also have implications for both the organizational telemedicine network services and the external telecommunications services used to connect partners.

This requires additional planning on behalf of those interested in implementing telemedicine services. System designers should consider how support will be provided and make the necessary arrangements. Support should be considered not only for internal infrastructure but also for external as well. Prior to implementing a





**Fig. 7.8** Image showing support considerations for telemedicine services on client/host model

telemedicine service, developers should consider how the service itself will be supported on all endpoints. Figure 7.8 shows possible support considerations for a telemedicine network.

## Comprehensive Ease of Use

One of the most cited reasons for technology adoption in information technology literature that influences technology acceptance and adoption is perceived ease of use [60]. Users of technology products tend to not want to focus their time and effort on learning to use a new product. Instead users tend to want to use their time in achieving the goals that a product allows. Therefore, the technology design must be easy to use or perceived to be easy to use. In regard to telemedicine, Garcia and Olayele [51] noted that ease of use is defined as the extent to which patients feel using the system will reduce their physical and mental effort. While traditional approaches tend to examine ease of use in relationship to particular software or system configurations, observations in Haiti suggest that more comprehensive investigations are necessary.

During the research endeavors in Haiti, researchers from the United States set up network and client equipment for use by Haitian colleagues. Although software packages and system components were chosen for their learnability and ease of use, there was a major factor that the team did not consider. This factor was the ease of setup. Ease of setup has been discussed in regard to telemedicine in other research [61].

The challenges with ease of setup were observed firsthand in Haiti. Due to concerns by Haitian colleagues over the security of the systems and possible theft if the equipment was left unattended, they would occasionally disconnect the equipment and lock it away. However, this would occasionally lead to challenges for the Haitian team when technical support was unable to provide assistance to medical providers with reconnecting the equipment. As discussed previously, there are often limited number of people with the technical skills to provide advanced support. Further among those that are available, many often have limited time to address all the challenges faced in medical institutions.

Ease of setup and maintenance are among the concerns discussed in previous studies on telemedicine in developing nations [62]. Because of the variations in possible telemedicine setups and the unknown requirements faced by partners in developing nations, it is recommended that a comprehensive approach be taken when examining ease of use. This comprehensive approach should integrate both ease of use and ease of setup and maintenance.

## Information Completeness

Another factor that should be considered in the development of telemedicine projects in developing countries is information completeness. Information completeness is the degree to which someone feels they have access to all the information they feel is important for evaluating the medical care, conditions, and procedures the telemedicine service provides [51, 63, 64]. While telemedicine can increase access to information [19], a lack of information completeness can cause gaps in expectations and lead to dissatisfaction [63]. This can be especially problematic when dealing with partners from different organizations in different countries, where trust is important to relationship building and influences the continuance of projects [65]. In terms of technical services, it is important to ensure the technology usage is transparent and mutually beneficial to partners in developing nations. Technology services should provide access to the information resources necessary so that partners can evaluate the results of their efforts.

## Conclusion

The primary goal of this paper is to present the key technical factors that will contribute significantly to the adoption of telemedicine in ERP countries. This data for this analysis is based on an experiential case and telemedicine implementation project in one hospital and a university in Haiti. Based on an in-depth literature review and our exploratory data, we have concluded that at least four factors must be present to ensure the adoption of telemedicine in an ERP country.

## References

1. Adler-Milstein J, Kvedar J, Bates DW. Telehealth among US hospitals: several factors, including state reimbursement and licensure policies, influence adoption. *Health Aff.* 2014;33(2): 207–15.
2. Kahn JM, Cicero BD, Wallace DJ, Iwashyna TJ. Adoption of intensive care unit telemedicine in the United States. *Crit Care Med.* 2014;42(2):362.

3. Research and Markets Offers Report: Global Telemedicine Market – Growth, Trends and Forecasts (2016–2020). Global Telemedicine Market 2016.
4. Kruse CS, Karem P, Shifflett K, Vegi L, Ravi K, Brooks M. Evaluating barriers to adopting telemedicine worldwide: a systematic review. *J Telemed Telecare*. 2018;24(1):4–12. 1357633X16674087.
5. Edworthy SM. Telemedicine in developing countries: may have more impact than in developed countries. *Br Med J*. 2001;323(7312):524.
6. Bashshur RL. Telemedicine effects: cost, quality, and access. *J Med Syst*. 1995;19(2):81–91.
7. Xue Y, Liang H, Mbarika V, Hauser R, Schwager P, Getahun MK. Investigating the resistance to telemedicine in Ethiopia. *Int J Med Inform*. 2015;84(8):537–47.
8. Mistry H. Systematic review of studies of the cost-effectiveness of telemedicine and telecare. Changes in the economic evidence over twenty years. *J Telemed Telecare*. 2012;18(1):1–6.
9. Saliba V, Legido-Quigley H, Hallik R, Aaviksoo A, Car J, McKee M. Telemedicine across borders: a systematic review of factors that hinder or support implementation. *Int J Med Inform*. 2012;81(12):793–809.
10. Adelakun O, Kallio P, Garcia R, Fleischer A. Telemedicine adoption and sustainability in extreme resource poor countries. 2016.
11. Weinstein RS, Lopez AM, Joseph BA, Erps KA, Holcomb M, Barker GP, et al. Telemedicine, telehealth, and mobile health applications that work: opportunities and barriers. *Am J Med*. 2014;127(3):183–7.
12. Wootton R. Telemedicine in the National Health Service. *J R Soc Med*. 1998;91(12):614.
13. Sood S, Mbarika V, Jugoo S, Dookhy R, Doarn CR, Prakash N, et al. What is telemedicine? A collection of 104 peer-reviewed perspectives and theoretical underpinnings. *Teleme J E Health*. 2007;13(5):573–90.
14. Oh H, Rizo C, Enkin M, Jadad A. What is eHealth (3): a systematic review of published definitions. *J Med Internet Res*. 2005;7(1):e1.
15. Devore PA, Paulich MJ, Talkington SG, Floeresch NR, Barton PL, Neal S. The slow pace of interactive video telemedicine adoption: the perspective of telemedicine program administrators on physician participation. *Telemed J E Health*. 2007;13(6):645–57.
16. Ruas SSM, Assunção AA. Teleconsultations by primary care physicians of Belo Horizonte: challenges in the diffusion of innovation. *Teleme J E Health*. 2013;19(5):409–14.
17. Grigsby J, Sanders JH. Telemedicine: where it is and where it's going. *Ann Intern Med*. 1998;129(2):123–7.
18. Whitten P, Love B. Patient and provider satisfaction with the use of telemedicine: overview and rationale for cautious enthusiasm. *J Postgrad Med*. 2005;51(4):294.
19. Hjelm N. Benefits and drawbacks of telemedicine. *J Telemed Telecare*. 2005;11(2):60–70.
20. Hailey D, Ohinmaa A, Roine R. Study quality and evidence of benefit in recent assessments of telemedicine. *J Telemed Telecare*. 2004;10(6):318–24.
21. Hailey D, Roine R, Ohinmaa A. Systematic review of evidence for the benefits of telemedicine. *J Telemed Telecare*. 2002;8(suppl 1):1–7.
22. Isabalija SR, Mayoka KG, Rwashana AS, Mbarika VW. Factors affecting adoption, implementation and sustainability of telemedicine information systems in Uganda. *Electron J Inf Syst Dev Ctries*. 2011;5(2):299–316.
23. Martin AB, Probst JC, Shah K, Chen Z, Garr D. Differences in readiness between rural hospitals and primary care providers for telemedicine adoption and implementation: findings from a statewide telemedicine survey. *J Rural Health*. 2012;28(1):8–15.
24. Lee Y, Kozar KA, Larsen KR. The technology acceptance model: past, present, and future. *Commun Assoc Inf Syst*. 2003;12(1):50.
25. Walker J, Whetton S. The diffusion of innovation: factors influencing the uptake of telehealth. *J Telemed Telecare*. 2002;8(suppl 3):73–5.
26. Hu PJ, Chau PY, Sheng ORL, Tam KY. Examining the technology acceptance model using physician acceptance of telemedicine technology. *J Manag Inf Syst*. 1999;16(2):91–112.
27. Hu PJ-H. Evaluating telemedicine systems success: a revised model. In: System sciences, 2003 proceedings of the 36th annual Hawaii international conference on: IEEE; 2003.

28. Orruño E, Gagnon MP, Asua J, Abdeljelil AB. Evaluation of teledermatology adoption by healthcare professionals using a modified technology acceptance model. *J Telemed Telecare*. 2011;17(6):303–7.
29. Croteau A-M, Vieru D, editors. Telemedicine adoption by different groups of physicians. System Sciences, 2002 HICSS Proceedings of the 35th Annual Hawaii International Conference on; 2002: IEEE.
30. Chau PY, Hu PJ-H. Investigating healthcare professionals' decisions to accept telemedicine technology: an empirical test of competing theories. *Inf manage*. 2002;39(4):297–311.
31. Miller EA. Telemedicine and doctor–patient communication: a theoretical framework for evaluation. *J Telemed Telecare*. 2002;8(6):311–8.
32. Kifle M, Payton FC, Mbarika V, Meso P. Transfer and adoption of advanced information technology solutions in resource-poor environments: the case of telemedicine systems adoption in Ethiopia. *Teleme J E Health*. 2010;16(3):327–43.
33. Shaw RJ, Kaufman MA, Bosworth HB, Weiner BJ, Zullig LL, Lee S-YD, et al. Organizational factors associated with readiness to implement and translate a primary care based telemedicine behavioral program to improve blood pressure control: the HTN-IMPROVE study. *Implement Sci*. 2013;8(1):106.
34. Mell P, Grance T. The NIST definition of cloud Computing 2011. 1–3. U.S. Department of Commerce. National Institute of Standards and Technology. <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf>.
35. Chanopas A, Krairit D, Ba Khang D. Managing information technology infrastructure: a new flexibility framework. *Manage Res News*. 2006;29(10):632–51.
36. Fuchs C, Horak E. Africa and the digital divide. *Telematics Inform*. 2008;25(2):99–116.
37. Van Dijk J, Hacker K. The digital divide as a complex and dynamic phenomenon. *Inf Soc*. 2003;19(4):315–26.
38. Gosselin RA, Maldonado A, Elder G. Comparative cost-effectiveness analysis of two MSF surgical trauma centers. *World J Surg*. 2010;34(3):415–9.
39. Laguerre MS. Information technology and development: the internet and the mobile phone in Haiti. *Inf Technol Dev*. 2013;19(2):100–11.
40. Mili L. Mitigating the vulnerability of critical infrastructure in developing countries. Washington D.C.: World Bank; 2003. p. 273–88.
41. Khawaja WS, Xinhai L. A case study of telemedicine for disaster management in underdeveloped remote districts of Balochistan, Pakistan. *J Econ Sustain Dev*. 2013;4(20):1–13.
42. Touray A, Salminen A, Mursu A. ICT barriers and critical success factors in developing countries. *Electron J Inf Syst Dev Ctries*. 2013;56:1.
43. Wallsten S. Regulation and internet use in developing countries. *Econ Dev Cult Chang*. 2005;53(2):501–23.
44. Aladwani AM. Key internet characteristics and e-commerce issues in Arab countries. *Inf Technol People*. 2003;16(1):9–20.
45. Petrazzini B, Kibati M. The internet in developing countries. *Commun ACM*. 1999;42(6):31–6.
46. Davison R, Vogel D, Harris R, Jones N. Technology leapfrogging in developing countries—an inevitable luxury. *Electron J Inf Syst Dev Ctries*. 2000;1(5):1–10.
47. Feder JL. Cell-phone medicine brings care to patients in developing nations. *Health Aff*. 2010;29(2):259–63.
48. Gunasekaran V, Harmantzis FC. Emerging wireless technologies for developing countries. *Technol Soc*. 2007;29(1):23–42.
49. Kshetri N. Cloud computing in developing economies. *Computer*. 2010;43(10):47–55.
50. Garcia R. An examination of instruments for measuring patient satisfaction with telemedicine. 2016.
51. Garcia R, Olayele A, Han W, editors. Defining dimensions of patient satisfaction with telemedicine: an analysis of existing measurement instruments. In: Proceedings of the 50th Hawaii international conference on system sciences; 2017.
52. Watkins SG, Parker JM, editors. Thinking outside the box: making digital content available where the internet is not. In: Forty years of sailing: connecting islands in a digital world- Proceedings of IAMS LIC conference; 2014.

53. Dada D. The failure of e-government in developing countries: a literature review. *Electron J Inf Syst Dev Ctries*. 2006;26:1.
54. Petter S, DeLone W, McLean ER. Information systems success: the quest for the independent variables. *J Manag Inf Syst*. 2013;29(4):7–62.
55. Ryu S. Telemedicine: opportunities and developments in member states: report on the second global survey on eHealth 2009 (global observatory for eHealth series, volume 2). *Healthc Inf Res*. 2012;18(2):153–5.
56. Mahmood MA, Burn JM, Gemoets LA, Jacquez C. Variables affecting information technology end-user satisfaction: a meta-analysis of the empirical literature. *Int J Hum Comput Stud*. 2000;52(4):751–71.
57. Hersh W, Margolis A, Quirós F, Otero P. Building a health informatics workforce in developing countries. *Health Aff*. 2010;29(2):274–7.
58. Indjikian R, Siegel DS. The impact of investment in IT on economic performance: implications for developing countries. *World Dev*. 2005;33(5):681–700.
59. Kuehn BM. Global shortage of health workers, brain drain stress developing countries. *JAMA*. 2007;298(16):1853–5.
60. Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q*. 1989;13:319–40.
61. Eklund JM, Sprinkle J, Sastry S, Hansen T, editors. *Information Technology for Assisted Living at Home: building a wireless infrastructure for assisted living*. Engineering in Medicine and Biology Society. In: 2005 IEEE-EMBS 2005 27th annual international conference of the IEEE; 2006.
62. Pentland A, Fletcher R, Hasson A. Daknet: rethinking connectivity in developing nations. *Computer*. 2004;37(1):78–83.
63. Brohman MK, Watson RT, Piccoli G, Parasurama A. Data completeness: a key to effective net-based customer service systems. *Commun ACM*. 2003;46(6):47–51.
64. Ong LM, De Haes JC, Hoos AM, Lammes FB. Doctor-patient communication: a review of the literature. *Soc Sci Med*. 1995;40(7):903–18.
65. Akter S, Ray P, D'Ambra J. Continuance of mHealth services at the bottom of the pyramid: the roles of service quality and trust. *Electron Mark*. 2013;23(1):29–47.



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# Chapter 8

## Encountering Traditional Medicine in Global Health Service



Alexia C. Croteau-Chonka

*When the practitioner's own Heart is still, trust is established and contact can be made with the truth in the patient's Heart. The healer does not impose their will, but assists patients in transforming by themselves.*

– Stéphane Espinosa [6, 12]

Medical professionals look to international and local engagement with medically underserved peoples as both a type of service and a way of developing new insights into their clinical practice. Part of the appeal of global health work is the range of new experiences that it entails. If you truly want to glean the most from your global health work, you must actually be willing to take in those experiences far removed from your own reality, including those from the active and viable global practice of traditional medicine (TM). The World Health Organization (WHO) in its report “WHO Traditional Medicine Strategy 2014–2023” calls traditional medicine a “mainstay of healthcare” [29] and a complement to the delivery of health services globally. The term traditional medicine includes, but is not limited to, traditional Chinese medicine (TCM), Indian Ayurvedic medicine, Shamanic healing, African traditional medicine, Arabian Unani, and herbal/ethnobotanical treatment. Some forms of traditional medicine like Ayurveda and TCM are represented by both formally trained practitioners and centuries of written medical texts, while others like African and Shamanic medicines are more dependent on apprenticeships and oral traditions for their training. Whatever the modality of traditional medicine, its practitioners share your concern for the health of the people in their care.

Geographic proximity to local healers, the relatively low cost of care, and long-standing cultural practices make traditional medicine a part of everyday life globally. “In developing countries, broad use of TM is often attributable to its accessibility and affordability” [28]. In more resource-rich environments, traditional medicine

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use is “fueled by concern about the adverse effects of chemical drugs, questioning of the approaches and assumptions of allopathic medicine, and greater public access to health information” [28]. The intersection of allopathic or Western scientific medicine (often referred to as Western medicine) and traditional Chinese medicine (of which the author is a practitioner) in the United States can serve as a framework for understanding the appeal of traditional medicines globally as well as common concerns from allopathic providers. Examples provided in this chapter may be specific to Chinese medicine, but the lessons and concepts about what it means to interact with traditional medicines apply irrespective of culture or location.

What does all of this mean for the Western medical practitioner that seeks to advance health and well-being in the name of global health service? Regardless of where one travels in the world to practice medicine, there is little doubt about the likelihood of interacting with patients who use traditional medicine (remembering that patients may not inform you of their other healthcare practices). You might think that the work that you do stands alone, uninfluenced by the actions of others or the culture within which you are working. You are there as a doctor, aide, or administrator with valuable resources and knowledge to contribute. You heal, comfort, and support in the midst of, and often despite, a hectic and anxiety-filled environment; why should you let your focus and efforts be distracted by practices that are not part of any medicine you recognize? I want to argue that validation of and collaboration with traditional medicines are precisely what it means to provide service to others through medical missions and that the impact of one’s attitudes toward the values and practices of a people has implications beyond singular medical interactions.

## **Contrasting Allopathic and Traditional Medicine Worldviews**

The breadth of experience and knowledge acquired during your global health service allows you as a practitioner to see beyond the limitations of a single situation or patient presentation and grow into a seasoned and empathic healer. Indeed, being able to innovate and think creatively are necessary skills when working outside of your ideal environment. It seems obvious that in order to learn from your experience, you must be willing to listen; however, learning to listen is one of the biggest challenges facing any global health worker. Listening requires a willingness to consider viewpoints other than our own. Listening asks us to take the time to examine our own preconceptions and perceptions of what constitutes medicine.

While this might seem like a narrowly focused discussion amidst the vast and dauntingly complex field of global health, it is only by comprehending one’s own commitments and intentions through various thought experiments that we are able to respond to the need for greater good and have clarity about why it is we believe in the work we do. In global health service, a medical system may be as small and unknown as the folk medicine passed down in one family or as large as a national



health service, but the central questions and difficulties remain the same. If a physician truly believes in manifesting a pluralistic model of healthcare, such a commitment demands a critical examination of and change in one's own behavior to achieve that end. If multiple systems of medicine and their associated beliefs are allowed to exist without a hostile undertone, a shift is realized. Medicine is suddenly less about notions of right or wrong but about compassionate attention to human suffering.

It can be a jarring and sometimes threatening experience to encounter theories and practices that are based upon a fundamentally different understanding of the world than we are accustomed to. Even more frustrating can be the discovery that some systems of thought evaluate knowledge claims using what might be viewed as inferior or unreliable empirical methods. The status of traditional Chinese medicine within the United States is a singular example of the questions and challenges that emerge when differing health systems interact. For instance, in traditional Chinese medicine, the subjective experience of the patient is crucial in differential diagnosis, always contributing useful information as part of a holistic understanding of the patient's pathology. Objective measures such as palpation, listening and smelling (grouped under auscultation), and observation are tools for diagnosis. Along with inquiry, these tools make up the four pillars or four examinations, the basis of all patient interactions [16]. In clinical practice, visual examination of the tongue and detailed palpation of the pulse are considered vital and reliable sources of information [26]. Ancient Chinese medicine texts are considered the theoretical foundation for understanding the energy and dynamics that underlie not just human physiology but the cycles and phenomena of the world around us. Combining documented empirical knowledge spanning across thousands of years and one's own clinical experience, each practitioner judges the efficacy and application of any given practice through a complex and, depending on the tradition, lineage, or school of thought, often differing set of parameters. Therein lies the underlying concern: how do you evaluate the efficacy and reliability of traditional medical practices when they are based on fundamentally different evaluation methods that do not conform to standard scientific research formats?

Whether one understands the practice of science as reflecting a paradigm that shifts over time or as the most accurate and objective understanding of natural phenomena, it is undeniable that science and the Western medicine practice that it is based upon are part of a distinct, enduring, and valued world view. Rapid advances in science and technology in the years following the scientific revolution yielded incredible knowledge pertaining to the functioning of human body as well as our surrounding universe. We live in an era that largely values concepts such as objectivity, reproducibility, validation, and controlled experimentation. The framework for making knowledge claims (as part of the scientific method) presents science as a relatively progressive understanding of the underlying mechanisms and forces that govern our world. We need to remember though that not only is the practice of science a social activity that relies on a community of peers to critically analyze and evaluate research findings but that there are also arguments that social values play a role in shaping scientific theories and methods [15].

## Safety and Efficacy of Traditional Medicine

Concerns about the safety and validity of traditional medicine practices fuel resistance to alternative therapeutic methods. The scientific and medical communities take a protective stance when it comes to challenging practices and theories that operate outside of traditional verification standards and regulatory or governmental oversight. There has long been a history of seeking out and exposing false medical claims and unlicensed practitioners through concerted organizational efforts. Three distinct stages of allopathic response to complementary and alternative medicine (CAM) were evident in prominent medical journals in the last decades of the twentieth century: condemnation, reassessment, and integration [25]. Research shows that acupuncture is relatively safe in comparison to common Western medical practices, with serious adverse effects rarely occurring [5, 24, 27]. With increasing numbers of Americans utilizing some form of alternative health therapies [3] and the widespread dissatisfaction with the current medical system [11], the evolution from condemnation to integration reflects the recognition that CAM therapies and traditional medicine will likely remain a significant part of modern healthcare. The integration of other traditional medicine modalities is also expected to be a continuing contributor to providing global health services “in a safe, respectful, cost-efficient and effective manner” [29].

It is important to recognize that practitioners of traditional medicine are often just as concerned about the safety and efficacy of their medicine as allopathic practitioners. Some of the concerns about traditional medicine can be alleviated through increased education about common or established practices. For instance, some patients and medical doctors are unaware that standard acupuncture practice uses commercially manufactured, sterile, single-use filiform needles. In the United States, this practice is in compliance with established Clean Needle Technique protocols [4]. While there are always preventable incidents in any medical practice, adverse events associated with acupuncture, both major and minor, are considered minimal [24] to the degree that even the most expensive acupuncture malpractice insurance rates are a fraction of the rates associated with allopathic medical doctors [2].

Similarly, what many outside of the field do not know is that Chinese medicine herbalists in the United States are very concerned with the sourcing and quality of their herbs. There are companies that make testing for heavy metals, impurities, and correct species/plant part a standard of their business practice [10]. The many years of required and elective training that board-certified Chinese medicine herbalists have in the United States puts them in a unique position to understand what constitutes risky versus safe herbal practice. The very same herbs that practitioners prescribe for their patients they themselves and their families use. Many practitioners are open if not enthusiastic to answer questions about herbology and safety measures. What often stymies open dialogue is a fear of hostility and demeaning interactions with other medical providers, leaving many Chinese medicine practitioners disinclined to challenge misconceptions or misinformation regarding herbal medicine.

Communities of traditional medicine practitioners have an interest in maintaining the integrity of their reputation and have as much, if not more, concern about the well-being of their patients as outside bodies. While increased standardization of clinical practices, educational curriculum, and licensing requirements for traditional medicines can create a sense of safety in more industrialized countries, how can we be sure that an individual practitioner from an esoteric lineage of medicine is practicing safely and in the best interests of their patients? There are a few ways to answer this question, but each one requires understanding the perspective on the part of the inquirer. For a small rural community that is intimately familiar with its traditional healer of many decades who is both their doctor and neighbor, it is the outside medical doctor unknown to and without investment or roots in the community who is least trustworthy. Some traditional medical practitioners view the Western medical practice of using chemotherapy to treat cancer as even more toxic, unpredictable, and dangerous than even their strongest herbal formulas. What may appear strange and suspect to one medical practitioner changes based on their familiarity and knowledge of other treatments and practices.

Even though many countries have professional and competency-based standards of medicine, there are still individuals who practice medicine beyond their aptitude and experience or outside of their scope of practice. The highly litigious nature of the United States may indeed be a reflection of the sense of distrust and risk associated with common Western medical procedures. Remembering that even in industrialized nations licensure and educational background do not guarantee safe or non-controversial practices, the likelihood is that, as a geographic or community outsider, you do not have the means or ability to vet the qualifications or credibility of a given medical practitioner, particularly one operating under a dissimilar system of medicine. It is important to also remember that government and institutional regulation are not the only forms of validity. A community can self-regulate by virtue of personal relationships and reputation. Such self-policing is not limited to tightly knit populations; it is actually the bedrock for how most business and transactional relationships are formed across societies.

## Healthcare as Political Activism

Historically there has been a strong link between religious motivations, political involvement, and medical missions. “A doctor cannot appreciate too early the fact that his profession is a part and product of society and that it is always closely connected with religion, philosophy, economics, politics, and the whole of human culture” [1]. The fact of the matter is, political environments and governmental policies govern the ease with which global health initiatives can operate. Groups such as Doctors Without Borders that emphasize treatment based on medical need alone demonstrate a desire to work outside of the boundaries traditionally erected to allocate healthcare [7]. I would argue that delivering medical services to those in need

or advancing the spread of medical knowledge is by its very nature a political statement, one that argues for a fundamental human right to healthcare and recovery.

In learning to value traditional medicines, you are engaging in a radical act of acceptance that shows others that you can strongly disagree with another individual's actions without losing sight of what common emotions and needs irrevocably bind your experiences on a deeper level. In this way, medicine, and the compassion and integrity it conveys, serves as an example of how individuals from different ways of life can relate and coexist. What better tool to fight the violence, oppression, and neglect that so often leads to the need for inter-/intranational medical assistance? And even more remarkable is the fact that there is no moratorium on changing one's own attitudes toward unfamiliar healthcare practices after learning more about how it positively impacts patients and their communities.

Even if explicit political motivation is absent from a global health initiative, one cannot ignore the influence of short-term interactions with aid workers or medical professionals on identity relations. Recall the importance that you give to the personal experiences in your own life: regardless of what you may be told by others, your perception of an organization or specific community is largely dictated by the positive or negative associations your direct experiences hold. The same concept is true for the patients and populations that you may serve in other geographies. Your actions, tone of speech, and attention reflect more than just your own style and personality but that of your affiliated organization, country, and demographic.

As a healthcare professional, you are a witness to people at their most vulnerable. The way an individual feels they are treated in a medical environment has a significant effect on their healthcare outcomes [21, 22]. If you remember that each therapeutic encounter is not limited by its immediate results, global health service becomes an opportunity to wield far-reaching influence. Not only does there exist the possibility of significantly changing the course of an individual life with critical healthcare assistance but also the prospect that larger governing institutions are positively impacted by individuals who have experienced kindness in their own lives—kindness that you can provide.

## **Finding Commonality**

What is often overlooked in the midst of more immediate issues surrounding a health initiative is that there must be a great deal of caution in acting from any deeply held belief that working with patient populations in different countries or locales is profoundly different than working with patients in one's home area. Certainly distinct cultural norms, expectations, and beliefs as well as differing language and societal structure have an effect on how patients relate to and manage their health. And while it is exceptionally important to be aware of and responsive to how these factors influence patients' behavior, on an even more fundamental level of common humanity, there must be some recognition that patients across borders and geography are seeking similar things.

I would argue that respecting traditional medicine is an extension of validating a patient's culture and belief system. In a state of suffering or great distress, who among us would want to seek help from individuals who challenge our sense of self-worth or deny our experiences? What patient wants to experience helplessness or confusion when presented with treatment options that may not align with their values? There will always be instances where patients are extraordinarily difficult to work with or even hostile, often as a manifestation of, or reaction to, their underlying illness; however, the general argument is that more can be gained by initiating interactions from a remembrance of shared human wants and needs. The moment we as practitioners begin to practice medicine with a notion of the "other," we create separation and a power dynamic that can impede communication and healing.

If a patient is employing self-care or medical practices that a practitioner believes to be dubious or possibly harmful, there can be an immediate judgment that this individual is ignorant, backward, or "less than." Remembering your commitment to the well-being of others must be the main priority in this interaction. It is precisely because patient safety is one of your highest concerns that you cannot speak and act from a moral high ground. The discussions that you have with patients are not scientific conferences where experts have convened to agree on the available evidence for a particular method. Patient-practitioner exchanges are also not discussions to be won but the starting point for investigating what patient needs are not being met. Those underlying emotions, drives, and wants are the binding force of humanity. If you are able to see the patient in front of you as someone who is acting based on the information that they have at hand and in accordance with what they believe will meet their needs, then you have access to the type of energy and presence that will convey sincerity to your patient. Only then can your recommendations and words have their truest potential to be in the spirit of service.

## **Coexistence of Healthcare Systems**

Most medical clinicians are coming into global health service with the underlying assumption that Western medicine is the preferred route for treatment. Part of being able to converse with patients and practitioners of traditional medicine is understanding that there are individuals for whom traditional medicine is their primary, preferred, and trusted healthcare. In validating this mind-set, a Western medical practitioner does not have to agree with a patient's choice to use traditional medicine, abandon critical examination of alternative practices for safety and efficacy, or forgo providing their opposing medical opinion. Validation of alternative medical practices is affirmation of the patient's choice to engage in the health management that they believe best suits their needs. This phenomenon of validation is not limited to the intersection of traditional and conventional medicine. Even within the Western medical system, there are many discussions about what it means to respect patient autonomy as part of a larger discussion of informed consent [9]. A patient is much

more likely to trust, confide in, and return to a practitioner who does not belittle or shame them for their treatment choices.

Realize that while there are holistic clinicians who view specific Western medicine practices and outcomes with the same level of skepticism and caution that medical doctors view traditional medicine, there are others who inherently understand that the safety of a patient is the main priority in interprofessional communication and referrals. For instance, given their minority status and desire to attain nationally consistent recognition of the depth of their medical training, Chinese medicine practitioners in the United States and, increasingly, internationally, are educated to understand the types of services provided by other practitioners and recognize when a patient is in need of outside referral. The emphasis in the biomedical training that Chinese medicine practitioners receive is on the ability to know when and why Western medicine is needed in specific situations (e.g., looking out for “red flags”). Even if a specific TCM practitioner has negative associations with Western medicine, there is a common understanding that they cannot practice without the assistance of and situational deference to Western medicine. If anything, in the United States, it is difficult to find the patient who is not under the care of an allopathic primary care provider or receiving pharmacotherapy and instead relies solely on Chinese medicine treatment.

One of the common lamentations within the field of Chinese medicine is that practitioners are required to know far more about Western medicine than most medical doctors ever know about Chinese medicine theory. TCM training in the United States includes courses on pharmacology, pathophysiology, clinical science, and orthopedic/neurological evaluations. Some doctoral programs “include advanced study in evidence-informed practice, biomedical diagnosis, preventative medicine, public health, collaborative case management, current healthcare systems, and practice-based learning” [19]. This observation is not intended as a claim of medical superiority or a call to compete for patients’ allegiance; rather, it is a reflection of the difficulty many traditional medicine practitioners experience when attempting to collaborate care. For example, awareness of traditional modalities (e.g., cupping, gua-sha, acupuncture, etc.) does not equate to a basic understanding of Chinese medicine theory, the heart of its power as a medicine. There is a recognition that it would be inappropriate to demand that allopathic practitioners use and comprehend the language of Chinese medicine differential diagnosis, but when the onus is on TCM doctors to use and understand Western medical terminology without reciprocity, efforts at interprofessional communication are limited. The basis for cooperation and dialogue across disciplines starts with a willingness to engage in one another’s language with a recognition of some of the rudimentary theoretical concepts.

As a Western medical doctor providing care in global health service, what type of relationship do you fundamentally strive for between traditional and conventional medicine? Kaptchuk and Miller [13] describe three possible scenarios: opposition, integration, and pluralism. Opposition to traditional medicine may be a possibility in short personal interactions but is an unsustainable model for gaining the trust of patients. The reality is that expressing your disapproval of a specific

modality does not necessarily prevent a patient from seeking out alternative treatment. Integration is an interesting but still problematic option, one that is highly touted as the ultimate merger of the best practices from different traditions and systems. Given the limited data and research on many traditional medicine practices, it is difficult to apply the same standards for evaluation to both traditional and conventional treatments. Secondly, integration ignores the core epistemological differences between distinct systems, forcing each to suspend adherence to the very principles that allow it to function at its best.

Rather than creating an ideal framework for applying combined treatment strategies, integrative medicine is fraught with double standards and inconsistent principles to guide patient care, likely resulting in some of the difficulty that has emerged in fully realizing such a model of healthcare. Pluralism allows both traditional and conventional medicines to coexist, maintain commitment to their own theoretical base, and yet still engage in dialogue, research, and teamwork. Patient autonomy is respected, and there is room to evaluate treatments based on risk-benefit analysis. This type of model is most likely to encourage open communication and respect for the strengths of different systems without forcing patients limit their treatment options.

Part of what it means to show respect with regard to traditional medicine practices is to understand that appropriating individual modalities for use in a Western medicine framework is not reflective of best medical practices. To use a medical modality without the context of differential diagnosis not only increases the risk of adverse effects but limits the healing potential of that modality. Another way of saying this is to argue that traditional medicine is not a collection of treatment strategies and medical devices. If a traditional medicine is defined predominantly by the modalities it utilizes, the theory and functional understanding of the human body driving its medical practices are minimized. No medical procedure or therapy is isolated from the theory governing its use. Indeed, this is the rationale behind limiting scope of practice between different medical practitioners based on their level of training.

Imagine arguing that the entirety of Western medicine could be represented by diagnostic imaging, pharmacotherapy, and surgical interventions without any need for diagnosis, examination, or extensive educational training; it would be an offense to the work and expertise necessary to become a medical doctor. An MRI or CT scan is a powerful imaging tool only insofar as the depth of knowledge about its clinical relevancy, applicability, and risk. Similarly, cupping, acupuncture, herbal medicine, gua-sha, tui-na medical massage, and other traditional medicine modalities are the manifestation or expression of a system of medicine, but not the mechanism behind its effects.

When there is a focus on the modality, treatment, or therapy of a medical profession and terms such as “discipline” or “professional” are neglected, interprofessionalism is devalued [20]. When medical practitioners do not hold regard for one another’s profession, it has an effect on how they communicate. Miscommunication is not simply a failure of information transfer but involves complex dynamics of hierarchy, roles and responsibilities, and interpersonal conflict [23]. And that mis-

communication between practitioners is a significant and pervasive contributor to medical errors [14]. The patient harm that is generated by poor communication is no less damaging than harm from medical misadventures. As a healthcare provider, it is imperative that you recognize how your attitude toward other medical professionals directly influences your ability to communicate effectively. If you aim to do no harm to your patients, coming to a place where you can successfully engage with traditional medicine providers should be a matter of paramount importance.

The pluralistic model acknowledges the diagnostic framework and experience of traditional medicine practitioners, rather than reducing their medicine to a series of procedures and tools. Remember that the ritualistic component of medicine, sometimes referred to as contextual healing [18], contributes to positive therapeutic outcomes [17]. Clinicians engage with medicine as an active practice, and their involvement in creating the context surrounding patient-practitioner relationships cannot be ignored. When medical practitioners engage in ritualistic acts, they influence the effectiveness of the very procedures and therapies they employ. In other words, it is not just the injection that helps the patient heal but the fact that a clinician gave the patient an injection as part of a social interaction. The potential to improve health outcomes should not be downplayed because of the messy and complex set of factors that surround each medical exchange. These contextual factors may not conform to the parameters of randomized controlled trials, but they are a crucial tool for influencing well-being when conventional therapies fail.

A pluralistic approach to medicine is not as unfamiliar a concept as it might seem. Currently, in many parts of the United States, there is unobtrusive exchange of responsibility between TCM and allopathic medicine providers. Many patients choose which services from each system best serve their needs, sometimes without fully informing each provider about the complete nature of their healthcare experiences. Each system's medical providers work around the patient's presentation, doing their best to coordinate care with the information provided by the patient. I would argue that this model still provides space for collaboration and coordination of care, especially for complex, chronic health conditions. The key is to create a respectful professional relationship between systems of medicine that does not put the patient in a position where they feel the need to hide their healthcare choices so as to avoid potential harassment.

Interestingly enough, the Chinese medicine community within the United States is currently in the midst of a widespread discussion and series of rapid changes regarding interprofessional relationships and cross-discipline collaboration in a Western-medicine-dominated environment. With increasingly rigorous and prestigious academic accreditation awarded to schools of Oriental medicine (a term whose use is also the source of ongoing debate and concern), practitioners of acupuncture and herbal medicine are increasingly recognized as primary care providers [8]; however, the push for uniform academic standards creates requirements that some students and instructors view as burdensome and antithetical to the goal of training traditional medicine doctors. Some senior practitioners express fear that with greater acceptance of Chinese medicine by insurance companies and large hospital networks, what is a highly individualized diagnostic system will be reduced to



series of standardized procedures with little incorporation of theoretical differentiation. Other clinicians are strongly of the mind-set that unless we as a field take the steps to be an active part of working with legislators and policy officials to draft a picture of our future, we will be left out of the discussion entirely. They express an optimism about the possibility of greater opportunity to serve and more widespread reimbursement, believing that if Chinese medicine has managed to survive over the course of thousands of years through various political and cultural shifts, this phase of great change is just another test to highlight what makes the medicine so valuable.

Energy spent attempting to merge disparate parts of various medical systems or eradicate specific practices can be refocused on understanding what approaches work best for each patient at a given time. Instead of pointing to the failure of one particular system to treat a patient's illness, there can be a true manifestation of personalized care, attentive to the unique presentation and personality of one individual. An open mind-set and listening ear can hold much greater authority in educating patients about potential safety risks inherent in medical procedures than any amount of shaming or blame. You can use your intention to change the status quo of medicine to willfully engage with healers of many backgrounds, all without compromising the safety of a community or abandoning your critical evaluation skills.

## **A New Learning Experience**

When you bear witness to an individual's story, holding space for their living truth, you suddenly have access to an even deeper understanding of how to help that individual. The intention to break down barriers to interprofessional communication and manifest a pluralistic model of medicine can be the larger aim of a mission or organization, but on an immediate and intimate level, you are seeking to uncover the unmet needs, fears, and tendencies of an individual. Learning to listen, whether or not you believe what is being said, allows you to access both the superficial text (the story that is being told) and the subtext (the real message or insight). Now that you see what it is that this person is seeking, you can better understand what role traditional medicine plays in their life. Looking beyond the modalities of a medicine allows you to understand what it is that a system of medicine provides for its patients. Suddenly it is not about whether or not a specific traditional medical practice matches any conception of healing that you might have; it is about acknowledging that you too engage in ritualistic acts that incorporate established symbols and language each time you step into a position of authority. Your role and the energy it manifests change each time you recognize the unique needs of the individual in front of you. That authority does not grant you unchallenged judgment of others or their behavior; rather, it encompasses the responsibility to view each patient encounter from the most compassionate of angles.

One of the most powerful tools you have available to you is that of patient validation. Many systems of traditional medicine treat myriad and complex medical con-

ditions with limited tools and resources. This alone should be enticing to any health worker who has tried to coordinate medical care in remote or impoverished areas. But what can you do when you can do nothing? Where does the art of medicine come into play in the moments when procedures fail, medical supplies run out, or hope for recovery has disappeared? One of the most sacred jobs of a medical practitioner is as a witness to suffering. What can we learn from other medical systems when it comes to understanding our role as guides and advocates in disease? What possibilities exist if we were to reimagine what it means to be a doctor and “heal” patients? What if the greatest potential in being exposed to other medical systems is not in learning a new set of techniques or procedures but a new way of relating to pain and the inevitable deterioration of the human body? Is there a possibility that other systems of medicine offer more than just another mechanical approach to treating illness? Can we even conceptualize a profound healing experience coming from a simple touch or few spoken words? What would it look like to have a whole medical system built on those types of exchanges?

Many medical practitioners have spent years, perhaps even decades, exercising and honing a very specific set of scientifically founded diagnostic abilities, but have we trained global health workers in the important personal cultivation that gives them the ability to absorb new experiences and perspectives about what it means to live a good life? There is no doubt that your training is valued; otherwise your assistance would not be sought in underserved areas of the world. You are not there to proselytize or confirm textbook understandings of disease but to recognize that your standpoint comprehends a small sample of the illness that actually exists. In opening yourself up to other forms of medicine, you may discover that conceptions of what constitutes disease vary and that in reconceptualizing notions of imbalance or disharmony in the human body, you access previously untapped preventative treatments. You have as much to learn from the people you help as they have to gain from you.

Next, imagine what happens when you leave an area or community. When there is limited patient contact, establishing continuity of care is crucial, particularly with chronic or complex illness. Do you know who are the healers and workers who sustain vulnerable populations? Would it not be in your best interest to establish relations with the trusted healthcare providers of a community given that they are the ones who have made the long-term commitment to serve those people? To do so only serves to further the impact of your work: you are no longer a single point of contact in a patient’s life but part of a larger and sustained plan to assist in health of a community. Just as it is in any system of medicine, healthcare is not an amalgamation of disconnected treatments but a long-term effort of prevention and maintenance. It is one thing to fixate on providing short-term, immediate aid and another to sustain the array of services that promote well-being and quality of life.

Ideally your global health service or mission will endow you with a different concept of well-being and the role of the medical provider. This is especially true when it comes to understanding a supportive network as being an integrative part of well-being. If a traditional medicine serves to support and validate the experi-

ences of individuals, how can we not say that on a basic level it is attending to an important factor in their health? Does a patient respond as well to medical advice if they feel looked down upon or shamed by the very individual they are trusting to help them? Your body language, touch, and presence convey your attitude even across cultural and language barriers. A patient will never be free to recover or heal if they live with the idea that who they are or the feelings/sensations they have are not valid or real.

The true test comes when a healthcare provider is faced with a patient whose reality does not match that seen by others. For example, if a patient denies that a functional and unremarkable limb is a part of their body, the diagnostic evaluation will include a rejection of this belief to some degree. Of course it is necessary to contrast the patient's experience of their limb with the observation of the clinician, but the way this disconnect is framed makes a difference in how this patient's experience is validated. The patient's belief is real by virtue that it is their belief and representative of their living experience. It is one thing to say that the patient's experience is erroneous because it does not match your understanding of reality and another to curiously investigate what gives rise to this patient's perception. Why get angry or frustrated that the patient is experiencing something you do not recognize? Is it really true that the patient's experience is only real the moment it becomes enshrined in the annals of research literature or medical texts? The experience of the patient is valid and highly informative because it is just one part of a larger understanding of their presentation. What about a patient who is complaining of a fever but is neither warm to the touch nor presenting with a sufficiently elevated body temperature? Is this patient wrong in saying that she is feverish? Rather than using patients' experiences as a way of confirming or denying biometrics, it is much more useful to understand the patient's perspective as a key in creating a differential diagnosis; it is neither true nor false but instead exists as part of the larger clinical picture.

## **Opportunity to Share**

There is tremendous opportunity to learn and explore in the unfamiliar context provided by global health service. With Western medicine seen as the global standard for medical care, the influence and prevalence of traditional medicine has changed significantly over time. Encountering traditional medicine opens the door to investigate and learn from practices that utilize theories not captured or understood by current scientific knowledge. This gain in knowledge is not limited to just specific techniques or modalities but can include communication skills, disease presentation and diagnosis, as well as the socioeconomic factors contributing to and brought about by illness. At a time when the ability to study and document traditional medicines is surpassed by a focus on pharmacotherapy research and medical device development, medical practitioners in service throughout the world

are in a strategic position to observe traditional medicine effects and relay their experiences to other providers.

As highly trained professionals, medical doctors and other clinicians can employ a critical analysis of traditional medicine practices from a Western medicine perspective. Key to any informal evaluative process is an understanding and acknowledgment of one's own "lenses." In other words, clinicians must be cognizant that in an unfamiliar environment, not only are observations influenced by one's own personal experiences and values, but there may be a tendency to evaluate unfamiliar practices with more scrutiny than is generally placed upon practices presumed valid in one's own field.

Much of the fruit borne by the scientific method is in its dialogue, information transmission, and critical assessment. Global health service is a phenomenal opportunity to contribute to that discussion. It may not be observed within the confines of a highly controlled experimental setting, but it still provides valuable information on how theory and principle unfold in situ. Rather than being a threat to Western medicine, traditional medicines and those who practice them have knowledge and insight that could help reconnect medical providers and patients with practices that seek to nourish rather than just sustain life. How we decide to collaborate and interact with those traditional systems of thought will be dictated by what commitments we ultimately value and the kind of life we want to live.

## References

1. Ackerknecht EH, Haushofer L. A short history of medicine. Baltimore: Johns Hopkins University Press; 2016. p. XXI.
2. American Acupuncture Council. Application for membership: Rate sheet; 2017. <http://acupuncturecouncil.com/aac-policy/>. Accessed 3 Jan 2017.
3. Bauer-Wu S, Ruggie M, Russell M. Communicating with the public about integrative medicine. Washington: Institute of Medicine Commissioned Paper; 2009.
4. Brett J, editor. Clean needle technique CNT manual: best practices for acupuncture needle safety and related procedures. 7th ed. Baltimore: Council of Colleges of Acupuncture and Oriental Medicine; 2015.
5. Ernst E, White AR. Prospective studies of the safety of acupuncture: a systematic review. *Am J Med.* 2001;110(6):481–5.
6. Espinosa S. The therapeutic role of the practitioner's heart in classical Chinese medicine and modern medical science. A critical literature review. *The European Journal of Oriental Medicine.* 2014;7(5):18–25.
7. Fox RC. Doctors without borders: Humanitarian quests, impossible dreams of *médecins sans frontières*. Baltimore: Johns Hopkins University Press; 2014.
8. Goldstein MS, Weeks J. Meeting the nation's primary care needs: current and prospective roles of doctors of chiropractic and naturopathic medicine, practitioners of acupuncture and oriental medicine, and direct-entry midwives. Seattle: Academic Consortium for Complementary and Alternative Healthcare; 2013.

9. Grady C. Enduring and emerging challenges of informed consent. *New Eng J Med*. 2015;372(9):855–62.
10. Inner Ecology. Quality evaluation: quality standards; 2017. <https://innerecology.com/quality-evaluation/qualitystandards/>. Accessed 3 Jan 2017.
11. Jacobs LR. 1994 all over again? Public opinion and health care. *New Eng J Med*. 2008;358(18):1881–3.
12. Jarrett LS. *Nourishing destiny: The inner tradition of Chinese medicine*. Stockbridge, MA: Spirit Path Press; 1998.
13. Kaptchuk TJ, Miller FG. Viewpoint: what is the best and most ethical model for the relationship between mainstream and alternative medicine: opposition, integration, or pluralism? *Acad Med*. 2005;80(3):286–90.
14. Leonard M, Graham S, Bonacum D. The human factor: the critical importance of effective teamwork and communication in providing safe care. *Qual Saf Health Care*. 2004;13(suppl 1):i85–90.
15. Longino HE. *Science as social knowledge: values and objectivity in scientific inquiry*. Princeton: Princeton University Press; 1990.
16. Maciocia G. *The foundations of Chinese medicine: a comprehensive text for acupuncturists and herbalists*. 2nd ed. London: Elsevier Health Sciences; 2005.
17. Miller FG, Colloca L, Kaptchuk TJ. The placebo effect: illness and interpersonal healing. *Perspect Biol Med*. 2009;52(4):518.
18. Miller FG, Kaptchuk TJ. The power of context: reconceptualizing the placebo effect. *J R Soc Med*. 2008;101(5):222–5.
19. Pacific College of Oriental Medicine. First professional doctorate – Chicago; 2017. <https://www.pacificcollege.edu/prospective/programs/chicago/fpd/doc>. Accessed 3 Jan 2017.
20. Rosenthal B, Lisi AJ. A qualitative analysis of various definitions of integrative medicine and health. *Top Integr Health Care*. 2014;5(4):9.
21. Stewart MA. Effective physician–patient communication and health outcomes: a review. *Can Med Assoc J*. 1995;152(9):1423–33.
22. Street RL, Makoul G, Arora NK, Epstein RM. How does communication heal? Pathways linking clinician–patient communication to health outcomes. *Patient Educ Couns*. 2009;74(3):295–301.
23. Sutcliffe KM, Lewton E, Rosenthal MM. Communication failures: an insidious contributor to medical mishaps. *Acad Med*. 2004;79(2):186–94.
24. White A, Hayhoe S, Hart A, Ernst E. Survey of adverse events following acupuncture (SAFA): a prospective study of 32,000 consultations. *Acupunct Med*. 2001;19(2):84–92.
25. Winnick TA. From quackery to “complementary” medicine: the American medical profession confronts alternative therapies. *Soc Probl*. 2005;52(1):38–61.
26. Wiseman N, Ellis A. *Fundamentals of Chinese medicine*. Revised ed. Massachusetts: Paradigm Publications; 1996.
27. Witt CM, Pach D, Brinkhaus B, Wruck K, Tag B, Mank S, Willich SN. Safety of acupuncture: results of a prospective observational study with 229,230 patients and introduction of a medical information and consent form. *Complement Med Res*. 2009;16(2):91–7.
28. World Health Organization. *WHO traditional medicine strategy 2002–2005*. Geneva: WHO Press; 2002.
29. World Health Organization. *WHO traditional medicine strategy 2014–2023*. Geneva: WHO Press; 2013.



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# Chapter 9

## Humanitarian Relief: A Public Health View



**Alan E. Kimura**

*The history of medicine and public health has repeatedly taught us that humility should infuse our practice and our teaching and all claims of causality. But humility need not lead to paralysis, and we hope that the reader is not caught between unreflective activism and an informed but ultimately paralytic skepticism. – Paul Farmer*

### Introduction

When a *humanitarian disaster* strikes, whether natural or man-made, access to a functioning public health infrastructure is often severely disrupted. Basic life-sustaining necessities of clean water, adequate food, clothing and shelter, and medical services must be provided rapidly to all in need. Special emphasis should be given to disadvantaged populations that existed prior to the disaster, as the most vulnerable are at greatest risk under harsh conditions and scant available resources. Those would include people at the extremes of age, as well as women, the disabled, and other marginalized or persecuted groups.

Television using satellites, and social media leveraging the Internet, increasingly report upon large disasters. The news spreads rapidly across the world, often driving demand for a humanitarian response. The provision of humanitarian aid continues to evolve, with pressure to improve coming from both within the humanitarian community and externally from donors funding the relief. Donors increasingly demand accountability by the nongovernmental organizations (NGOs) that are providing assistance. It is no longer enough to “do good deeds” but rather aim to adhere to a broadly conceived consensus of core standards for humanitarian response.

The cycle of preparedness, response, monitoring, and evaluation helps to foster a more coordinated and robust humanitarian response. The humanitarian response rests upon the foundation of humanitarian principles embedded within formal, legal

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treaty obligations between nations, as well as consensus principles expressed within the Humanitarian Charter of the Sphere Project [7].

From a modern, person-centered approach, being caught up in the middle of a natural disaster or armed conflict is a calamitous upending of one's life, perhaps even life-threatening. Physical safety, dehydration, starvation, exposure, infection, and despair all threaten the physical and mental health of individuals and the disrupted community. The government, whose responsibility is to address the needs, may itself be unable to respond effectively or quickly. So external actors in the humanitarian community may be invited to enter and provide lifesaving assistance. Human rights assistance binds signatories of international treaties to provide aid and conversely not deny water, food, shelter, or medical services as a tool of war. A rights-based approach based upon international law and a person-centered approach together inform the basis and the nature of the modern humanitarian response to disaster.

Overall, *public health* is concerned with protecting the health of entire populations. These populations can be as small as a local neighborhood or as big as an entire country or region of the world. Public health professionals try to prevent problems from happening or recurring through implementing educational programs, recommending policies, administering services, and conducting research – in contrast to clinical professionals like doctors and nurses, who focus primarily on treating individuals after they become sick or injured. Public health also works to limit health disparities. A large part of public health is promoting healthcare equity, quality, and accessibility [9].

This chapter is intended to provide the reader with the larger topographic features of the *public health perspective of humanitarian response to disasters*. The finer features of a technical nature are by design left to other sources for a more detailed discussion. Rather than a review of engineering or supply-chain logistics, the reader is invited to consider lessons learned within the humanitarian aid community (Rwanda), as well as lessons learned from inadequate response to crises by the civil society and by government agencies responding to disaster (Hurricane Katrina, 9/11 attack). There is strong agreement in the humanitarian aid community to continually refine and improve upon its performance – no less than hundreds of thousands of human lives may be at stake.

## **VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) & Meta-Leadership**

The components of this acronym describe a highly kinetic situation, developed as a concept by the military in the late 1990s to describe modern warfare. The business world often borrows concepts from the military, and VUCA is felt to be applicable to the modern business environment [4]. Knowledge is fungible – the concept of VUCA can also be applied to many humanitarian response scenarios, both due to natural disasters and complex (man-made) disasters. Common to the military, but



increasingly a trend in the corporate world, the linkage of strategy, preparedness, risk management, and situational problem-solving informs the evolving approach to humanitarian assistance.

Reconstituting a basic public health infrastructure following a disaster is inherently chaotic. The public health infrastructure and utilities in some instances may have taken decades or longer to build but may be rendered useless in hours. The government may be unable to rapidly grasp the totality of the situation and respond effectively after a natural disaster. In a complex disaster with armed conflict, security and protection are additional life-threatening challenges to a population.

Having acknowledged the chaotic nature of a disaster, the long-term response to these four components of VUCA requires different approaches. *Complexity* often requires restructuring to incorporate the technical expertise of subject-matter experts. *Volatility* often requires the investment of expensive surge capacity and stockpiling to respond quickly and effectively. *Ambiguity* often requires a scientific approach at the population level, armed with good data to generate hypotheses that can be tested and evaluated quickly. *Uncertainty* often requires investments in information technologies to support data gathering and analysis [3].

*Meta-leadership*, as a concept, was developed by the leadership of the United States, whom formally gathered to study the difficulties in coordinating the multi-agency response, following the natural disaster of Hurricane Katrina and the attack on New York City's World Trade Center on 9/11. Working with Harvard, the top leadership developed the concept of meta-leadership, to learn and better prepare for the future [4]. The need to communicate effectively and efficiently between silos of professional activity responding to disaster was highlighted. Relationships between agencies and other actors ideally should be in place, ready to be activated at the right time. Trying to forge these relationships in a VUCA scenario is predictably very challenging. Famously during the 9/11 disaster, wireless radios were on different frequencies, and interagency communication was difficult. But more importantly, not knowing whom to contact and the hierarchies that can be brought to bear must be linked quickly so as to begin the coordination of response.

The latest iteration of meta-leadership is distilled to three dimensions: the person, the situation, and connectivity. Meta-leaders must first lead themselves, with virtues of high self-awareness, self-knowledge, and self-control. Meta-leaders must be able to make good decisions with incomplete information and must rapidly grasp the situation, its relevant stakeholders, and the critical points and times for action. Connectivity requires the meta-leader's ability to first navigate the dynamics and complexities of leading down within one's silo (the focus of traditional "leadership" as opposed to meta-leadership). The second direction the meta-leader must connect is up to superiors, delivering performance for expectations and supporting goal setting. The third direction of connectivity is across other silos of activity to collaborate and coordinate (the essential task of meta-leadership in action). A fourth direction of connectivity extends beyond the technical actors, reaching out to the general public and the media, to create unity of purpose for a large-scale response.

## United Nations Cluster Approach

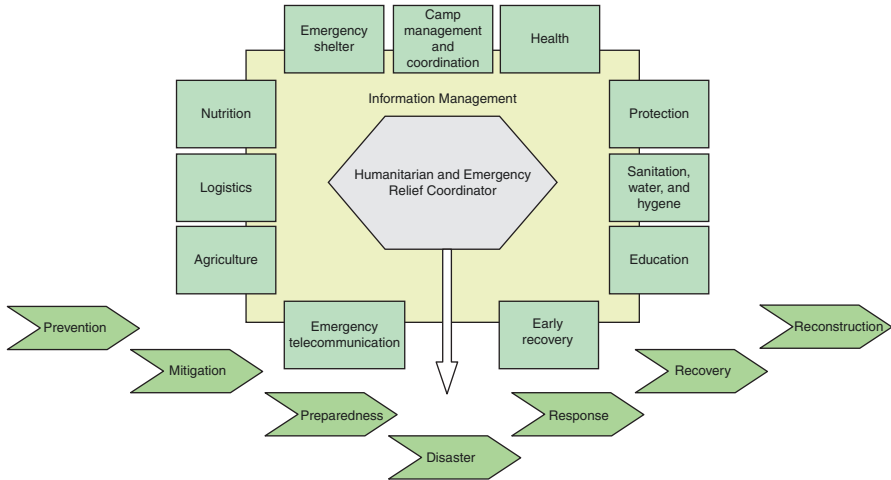
Meta-leadership applied to the challenge of mounting an effective and timely humanitarian response to a disaster is found in the UN Cluster Approach. *Clusters* are groups of humanitarian organizations (UN and non-UN) working in the main sectors of humanitarian action [1]. They are created when clear humanitarian needs exist, as coordination is vital in emergencies. Coordination yields efficiency, reducing gaps and redundant effort. A bias toward a need-based rather than a capacity-based response provides the vision to guide a coherent and complementary approach [5]. In action, clusters provide clarity, with a single point of contact with accountability for coordinating and optimizing the complex response. Clusters create partnerships between international actors, national and local authorities, and civil society.

The United Nations Office for the Coordination of Humanitarian Affairs (OCHA)'s role is to work closely with global cluster lead agencies and NGOs. At the policy level, the work is to coordinate intercluster issues and disseminate guidance for operations at the field level. At the field level, OCHA ensures that the response functions efficiently in support of the Humanitarian Coordinator (HC)'s leadership, and the Humanitarian Country Team. Specific tasks include needs assessment and joint planning, with monitoring and evaluation to adapt the response with agility [5].

### *Cluster Coordination: Disaster Relief Coordination [9]*

The Cluster Approach aims to add value to humanitarian coordination through:

- *Increased transparency and accountability:* Greater transparency in resource allocation, co-leadership, and operational performance leads to greater accountability.
- *Enhanced predictability:* Sector and thematic responsibilities are now clearer, and formal mechanisms exist to clarify those areas where they are not, both at national and international level.
- *Engagement with national and local authorities:* Having a single person to call within the international humanitarian architecture speeds up the resolution of issues and allows greater access for the nongovernmental community to the government and UN decision-makers.
- *Inclusion of affected communities:* Tools and services developed through the Cluster Approach ensure that those who know the most appropriate solutions to their problems be engaged in formulating the response. It also gives those affected by crises access to the government and decision-makers.
- *More effective advocacy:* Where the clusters, singly or collectively, speak with one voice on issues of common concern, including those affecting groups who are not normally heard.
- *Joint strategic and operational planning:* The formal process of coordination within and between clusters enhances efficiency while improving effectiveness.



**Fig. 9.1** How are disaster relief efforts organized? Cluster Approach and key actors. (From: “How are disaster relief efforts organized? – Cluster Approach and key actors”. Retrieved from <https://business.un.org/en/documents/6852>)

### Global Level

Clusters have been established in 11 key areas (see Fig. 9.1). The “global cluster leads” report to the UN Emergency Relief Coordinator (ERC). The WHO leads the global health cluster of 30 partners, developing organizational and training tools, ensuring surge capacity of skilled experts, their supplies, logistics, and security. WHO is also a member of the water/sanitation, nutrition, emergency shelter, and protection clusters.

### Country Level

Country-level clusters, or “sectoral groups,” will be established for any major emergency – any situation where humanitarian needs is the scale and complexity to justify a multi-sector, global humanitarian reaction. Clusters are established to meet the specific needs of the situation, meaning that not all 11 clusters may be activated. Based upon the capacities of the humanitarian agencies present on the ground at the country level, any IASC (Inter-Agency Standing Committee) member can be designated the cluster lead; it does not have to be a UN agency. The coordination of who is in charge in a given situation is governed by a set of rules. The country-level cluster structure and cluster leads are proposed by the UN Humanitarian Coordinator (HC) or the UNRC in a country where an HC has not been appointed. This proposal must occur with consultation with the government authorities and relevant IASC partners at the country level, with agreement from the ERC after consultation within

the IASC at the global level. Each actor in a cluster must practice meta-leadership in order to achieve a coordinate response.

### **Responsibilities**

By designating clear focal points within the humanitarian community for all key sectors of activity, the Cluster Approach should help governments and local authorities to know who to approach for support. The goal is to improve timely, predictable, and adequate responses.

A “cluster lead” is an agency or organization that formally commits to take on a leadership role with the global humanitarian community in a specific sector of activity. Their job is to ensure adequate response and high standards. The country director or representative is ultimately responsible for ensuring that sector performs effectively. A key responsibility of the sector lead in the country is to utilize local capacities. This means maintaining links with government authorities at the national and local level, and leveraging existing state institutions, civil societies, and other key stakeholders.

### **Accountability**

Accountability is paramount in the Cluster Approach for it to succeed. The UN Humanitarian Coordinator (HC), with the support of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), has overall responsibility for ensuring the effectiveness of the response. The HC remains accountable to the Emergency Relief Coordinator (ERC). Cluster leads at the country level are accountable to the HCs for timely and effective assessments and response in their respective sectors and for acting as providers of last resort. Importantly, cluster leads have mutual obligations to interact and collaborate to solve crosscutting issues that overlap with other sectors.

Meta-leadership applied to a VUCA scenario of a natural or man-made disaster highlights how evolving knowledge from diverse domains of human activity (military and business) can be applied to improve lifesaving humanitarian response affecting hundreds of thousands of lives.

### **The Sphere Project: Why?**

There is no overarching global governing body over that of individual nation-states. International agreements legally bind signatories together in certain circumstances.

Cooperation is therefore required and coordination is often extremely challenging. Some nations prefer independent action, while others prefer interdependent and

coordinated action. However, one may have to trade the value of coordinated action for the speed of independent action in crises demanding a rapid emergency response. On the other hand, a multiplicity of independent actors has created chaos on the ground, with duplication of effort and waste, or a failure to deliver relief at a standard sufficient to be of value to those in need. The delivery of humanitarian aid is fraught with challenges of balancing competing needs, such as between coordination versus independence of action, or between doing less for more people versus more for a fewer number, or between being more effective by working together versus preferring more individual credit in a highly competitive world demanding visibility and accountability.

“The Sphere Project was initiated in 1997 by a group of NGOs and the Red Cross and Red Crescent Movement to develop a set of universal minimum standards in core areas of humanitarian response: The Sphere Handbook. The aim of the Handbook is to improve the quality of the humanitarian response in situations of disaster and conflict, and to enhance the accountability of the humanitarian system to disaster-affected people. The Humanitarian Charter and Minimum Standards in Humanitarian Response is the product of the collective experience of many people and agencies. They should therefore not be seen as representing the views of any one agency” [7].

In settings without strong central control, problems have a tendency to be unrecognized, go unreported, and remain unsolved. Inertia and difference of opinion plague attempts at reform, until a convergence of forces force reform. The international spotlight highlighting the fragmented humanitarian response system led to the growing call for NGO community to reform itself before the donor community imposed external controls. True for organizations of any size, but particularly those operating at the transnational scale, change will only occur under pressure. Led by policy entrepreneurs, a coordinated evaluation between researchers with considerable experience and policy-makers improved the chances of research influencing policy. While generally a consensus emerged regarding the varied and sometimes poor performance of NGOs during the Rwandan crisis, divergent views emerged regarding solutions. Sphere resulted in the publication of a *Humanitarian Charter and Minimum Standards for Disaster Response* in 2000.

The Sphere Project proposed performance standards, but the Francophone NGOs, including MSF, had strong objections. Those opposed to the Sphere standards argued that there was too much emphasis on technical standards, lessening attention to humanitarian principles and deflecting responsibility from “ruling authorities” and the international community responsible for protection.

A growing recognition of the lack of coordination between transnational, regional, and government agencies in humanitarian response led to a major policy shift in the 1990s. “Good work” by humanitarian agencies goes unquestioned no longer. Self-reflection and formal reviews of the humanitarian response following the Rwandan disaster of 1994 accelerated more critical policy analyses. In particular, a lack of standards and performance metrics led to a well-recognized failure of response to the refugee crisis following the Rwandan disaster.

## ***The Sphere Project: The Humanitarian Charter and Minimum Standards***

As a tool to begin to understand the basic survival needs of an affected population facing a humanitarian crisis, in 1997 a consensus of 200 agencies, 800 individuals from 60 countries, identified positive changes in the ways humanitarian agencies can plan and implement response to disasters. Cross-agency groups combined efforts and produced the *Humanitarian Charter and Minimum Standards in Disaster Response* [6].

The Humanitarian Charter promotes the observance of three humanitarian principles that are often swept aside in crises: (1) the right to life with dignity, (2) the distinction between combatants and noncombatants, and (3) the principle of non-refoulement (the practice of not forcing refugees or asylum seekers to return to a country in which they are liable to be subjected to persecution). The Humanitarian Charter reaffirms that the primary responsibility to protect and assist people resides with the government, and it reminds them of their international legal responsibilities.

Consensus in any setting is often difficult, and achieving a global consensus on humanitarian aid is not without its critics. Indeed, close collaboration and tying together efforts are not universally accepted. The Groupe URD and MSF regard their independence and freedom of action as very important, viewing consensus standards as too proscriptive and often impractical based upon the specific circumstances of any given crisis. Local factors, usually a lack of resources, often make the standards difficult to achieve. Or establishing consensus standards may focus too much attention on meeting indicators of success while dangerously ignoring other more important, elusive factors that produce or prolong the crisis.

To boil down some very contentious positions is both necessary for brevity but acknowledging that reduction is at the expense of nuance.

Proponents of the Sphere Project and its Humanitarian Charter and Minimum Standards are redefining the human rights-based approach to humanitarian aid. They reference international humanitarian law, and are establishing standards of humanitarian aid in the four areas of water, food, shelter, and medical services. There is a long history of handbooks and codes of conduct by the United Nations, as well as the International Federation of Red Cross and Red Crescent Societies, each refining the framework of aid as the nature of the crises globally continues to evolve.

Sovereign states bear the duty to provide key resources critical to survival for their population. Humanitarian agencies have the duty to work with disaster-stricken populations consistent with their rights of participation, information, and nondiscrimination. The broad international consensus achieved through the Sphere Project is detailed in the handbook, describing rights to water, food, shelter, and medical services.

The 2011 edition is organized around four fundamental needs: water, food, shelter, and medical services.

## The Sphere Project and Humanitarian Response: Water, Food, Shelter, and Health Action

What follows will be a conceptual overview, rather than an operational manual. Other resources are available to serve readers seeking technical expertise.

Better response in public health is the result of preparedness. The concept of meta-leadership, which highlights the importance of relationship building, is fundamental to both capacity building and response to the disaster (p85). Preparedness includes contingency planning, stockpiling of equipment and supplies, emergency services and standby arrangements, and personnel training.

### Water Supply, Sanitation, and Hygiene Promotion

Let us first examine *water*, as central to any discussion of humanitarian aid. From a rights-based perspective based upon international law, everyone has the right to water and sanitation. A lack of clean water rapidly threatens the survival of all affected. An adequate supply of safe water alone is insufficient to sustain a population, for without hygiene promotion and excreta disposal, waterborne diseases can rapidly sicken and kill large numbers of people, further worsening the crisis.

The acute survival need for clean water arising from a humanitarian crisis demands an immediate response to save many lives through avoiding dehydration and disease from poor sanitation. People affected by disasters are generally more susceptible to illness and death from disease, driven largely by inadequate sanitation. The risk of diarrheal diseases and other diseases arises from the oral-fecal route; other vector-borne diseases arise from diseases in the setting of poor sanitation and solid-waste management.

It is vitally important to first consider these factors in water source selection: availability, proximity, and sustainability of sufficient quantity of water [7]. There may be social, political, and legal factors to consider with a given crisis. At the outset of a crisis, as many sources of water as are required may be brought to bear, with groundwater sources or natural spring flow requiring the least effort. The risk of overexploitation of water sources in longer term must be taken into account.

How much water is the minimum daily requirement? The consensus figure according to the Sphere Project's Minimum Standards in Humanitarian Response for survival needs is 2.5–3.0 liters per day for “drinking and food,” an additional 2–6 liters per day for “basic hygiene,” and an additional 3–6 liters per day for “basic cooking needs” or a total range of 7–15 liters per day per person for “basic water needs” [7].

In contrast, it is estimated that the average American uses 80–100 gallons (303–379 liters) of water per day under normal circumstances [8]. The majority of that usage is flushing the toilet, followed by bathing.

Next, consider the water supply at the population level in a humanitarian crisis. The minimum standard will depend upon the yield and availability of water at each source. Guidelines are 250 people per water tap, based upon a flow of 7.5 liters/minute; or 500 people per hand pump, based upon a higher flow rate of 17 liters per minute; or 400 people per single-use open well, based upon a flow of 12.5 liters per minute [7]. A longer queuing time may lead to secondary adverse health outcomes, such as reduced per capita water consumption, increased consumption of unprotected surface water, and reduced time available for other activities by those whose task is to collect water (often women).

Public health next considers the water supply needs of the “built environment,” which are the man-made physical structures supporting social needs. These would include health clinics and hospitals, cholera treatment centers, feeding centers, reception/transit centers, schools, and places of worship. Integral to the next section on food and nutrition, the water needs of crops and livestock will create additional demand.

Simply providing an adequate supply of clean water alone is insufficient, without simultaneously instituting a hygiene program. Susceptible individuals and eventually larger numbers of people will succumb to waterborne diarrheal diseases without a portfolio of sanitary measures. In addition, the use of communal water and sanitation facilities can increase women and girls’ vulnerability to sexual violence [7]. Protecting human rights is fundamental to modern humanitarian response, consistent with the foundational Humanitarian Charter. Women’s participation in water supply and sanitation programs is necessary to ensure safe and easy access to clean sources of water and sanitation for the affected population.

Excreta disposal and solid-waste management are vital to vector control. Safe disposal of human excreta creates the vital first barrier to disease transmission by direct and indirect routes. The creation of safe excreta disposal should be given as much priority as provision of a safe water supply [7].

### ***Broader View of Water Insecurity***

Acute water insecurity must also be viewed in a broader context of water scarcity globally. Water scarcity, in part, due to existing areas of drought dependent upon rainfall (the Middle East and the Sahel) and inefficiencies in water resource management, will likely be exacerbated by climate change. A broader perspective is central to long-term disaster response planning to mitigate the loss of life arising from direct conflict over water, with displacement of large populations.

States would be well served by high-level assessment and planning of their water resources, as economic uses of water loom large (farmers vs. herders in developing nations). Incentives to improve efficient water usage must proceed alongside water infrastructure projects, argues the World Bank [2]. A deeper dive into the role of institutions such as the World Bank in shaping economic development in the developing world is beyond the scope of this chapter.



Briefly, the World Bank states that water is central to “economic and social development: it is vital to maintain health, grow food, generate energy, manage the environment, and create jobs. Water availability and management impacts whether poor girls are educated, whether cities are healthy places to live, and whether growing industries or poor villages can withstand the impacts of floods or droughts.”

## Food Security and Nutrition

As with water, every person has the right to adequate *food*, recognized in international treaties. The Geneva Conventions and other treaties assure the right to food during armed conflict and occupation [7]. It is prohibited to starve a population as a method of warfare or to destroy livestock and degrade existing crops and means of production, including the land supporting agriculture, irrigation infrastructure, or access to water. Occupying states must ensure adequate water and food for the population, including internally displaced populations. International humanitarian law obliges the occupying forces to provide life-sustaining water and food.

The provision of food sufficient to avoid malnutrition is a major public health concern in a humanitarian crisis. Malnutrition is a leading cause of death, either directly or indirectly. The affected population may already be chronically malnourished before the crisis hits. Poverty, food insecurity, limited access to water, and poor sanitation are worsened by disasters such as hurricanes, typhoons, earthquakes, or armed conflict [7]. Underinvestment in the social determinants of health frays the protective social safety net. The cycle of preparedness, crisis, and recovery may create a downward spiral without the injection of external donations from state, regional, or transnational agencies.

For the purposes of planning for the minimum requirements of a population, adjusting for the specific needs of a given population, 2100 kcals/person/day, is the consensus starting point. In addition, 10% of total energy should be provided by protein and 17% of total energy provided by fat, with adequate micronutrient intake [7].

Infants and young children are particularly vulnerable to malnutrition. As is true for the problems arising from acute water shortage, food shortages and their effects occur in the context of pre-existing conditions [7].

When individual cases of micronutrient deficiency are detected, they must be treated immediately. Indeed, the detection of individuals with these deficiencies is an indicator of the likelihood of deficiencies at the population level. This will require more extensive epidemiologic surveillance, including reliable laboratory testing. Armed with data, a more robust, rational, and effective humanitarian response can be provided to populations in need. Biochemical monitoring must be performed in the initial response and subsequent recovery, as the possibility of both inadequate intake and excessive micronutrient intake, given the response featuring fortified foodstuffs in many settings.

*Selected micronutrient deficiencies with public health significance* include [7]: Vitamin A deficiency, iodine deficiency, iron deficiency, beriberi, pellagra, and scurvy.

Better food security in the setting of a disaster response is enhanced through preparedness, cognizant of early warning signs of an impending crisis. Meta-leadership that leverages relationships to build bridges linking a variety of governments, humanitarian agencies, and local and civil society organizations in anticipation of the next crisis can shorten response times-potentially save lives and alleviate suffering from malnutrition and susceptibility to other diseases ([7] p. 147). Contingency planning, stockpiling of equipment and supplies, emergency services, communications, personnel training, and community-level planning are all features of a coordinated response. Such a coordinated response lessens the risk of marginalized populations not getting proper assistance during the chaos of an initial fragmented response.

As the immediate disaster response to the nutritional component transitions to a sustainability problem, a more nuanced vulnerability and capacity analysis helps ensure that the aid is distributed in a nondiscriminatory manner and to those in greatest need. In a setting of scarcity, pre-existing disparities in resources may be magnified or new disparities created – any of which are destabilizing to the safety and security of the most vulnerable in the population.

Newer thinking, distinct from the older approach of disaster response, is to no longer conceptualize a population as dependent and helpless. Rather, a better response would now view from the outset an up-front collaborative approach that leverages the people's coping strategies, resiliency, and recovery capacities. Indeed, the existing knowledge and skills of that population are the greatest source of recovery. A flatter authority gradient from provider to recipient of assistance is the modern evolution of food aid. Cultural competency regarding food and nutrition is essential, achieved through the affected population's participation in the humanitarian response. Follow-on assessments of food security and nutrition require the permission and collaboration of the population to be accurate and therefore effective in addressing unmet needs.

Every disaster crisis will play out in its unique way. Having a structured technical approach, guided by humanitarian principles, brings the most up-to-date knowledge and experience to bear upon the problem. Saving the most lives and alleviating suffering for not only the dominant but also marginalized subpopulations becomes a broader goal.

## **Shelter and Settlement [7]**

Shelter is critical to survival in the initial stages of a disaster. Everyone has a right to adequate housing. This right is recognized in international legal instruments and includes the right to live in security, peace, and dignity, with security of tenure with protection from forced eviction and the the right to restitution. The most vulnerable

in the population are at risk of death from exposure, and the least resilient of the population will suffer and risk succumbing to infectious diseases in a weakened state. In addition to protection from the changes in temperature, wind, and precipitation, shelter provides security and personal safety allowing the population to recover from mental and physical shock. Adequate and safe shelter can foster the reintegration of physical and behavioral health that in turn improves resiliency and resistance to disease. Provision of 3.5 square meters/person is the starting point for humanitarian response, according to consensus of organizations contributing to the Sphere Project [7].

Shelter may come in the form of a return to existing built structures. Post-disaster, a determination of whether the existing structures are safe and habitable, is critical. The displaced population's desire to return and rebuild is often the best option. The ability and capacity of the population to contribute to meeting their shelter needs may determine the pace and extent of recovery in the early stages of disaster response. However, in situations where the population is either unable, or unwilling to return, they will require temporary or transitional shelter and settlement solutions. Local conditions will always inform the assessment and response. Variables include urban versus rural, the local climate and season, and, increasingly, the political and security situation.

Logistic challenges are part of the VUCA of a humanitarian response. Meta-leadership improves the preparedness, capacity, and coordinated response to disaster but may still be challenged by the need to transport massive amounts of materiel and key personnel to where the need resides. The status of the sovereign state and its internal operations may impose significant drag upon the inflow of resources and human assets. Some communities may have to rely solely upon their local resources and coping strategies in the initial stages until roads and bridges can be cleared and rebuilt.

A sustainable means to prepare, cook, and eat food is integral to the design and creation of shelter. Once the phase of emergency food aid or vouchers for purchase of food has passed, it is preferable for the population to reconstitute itself with meals planned, prepared, and consumed as per the input of the affected community.

Restoration of the built environment allows for the more nuanced forms of social interaction that meet more than the basic survival needs of individuals. Depending upon the stage of recovery, transition to the recovery stage includes fostering of other community coping strategies, including employment opportunities.

Amidst the VUCA of a relocation crisis, a longer look toward sustainable access to natural resources is ideally considered: clean water for drinking, sanitation, and washing facilities; fuel for cooking, heating, and lighting; and food storage facilities, refuse disposal, site drainage, and provision of emergency services.

Longer-term sustainability from the public health perspective considers the critical built environment. Appropriate siting of shelter or more robust settlements should include safe access to healthcare services, schools, and childcare centers. Other social facilities and employment opportunities must be included to return the population to its community-level health by rebuilding the inherent social capital. A denser, mutually supportive social fabric can be reconstituted with the inclusion of these facilities.

As a common theme interwoven into all four basic public health needs (water, food, shelter, medical services), preparedness and capacity building allow for a coordinated, robust, and more effective humanitarian response.

## Health Action

As with the other public health basics discussed previously (water, food, and sanitation), everyone has the right to health, enshrined in multiple international legal instruments ([7], p. 291). The right to health can only be assured if the population is protected. The right to health requires well-trained professionals adhering to ethical principles and professional standards. These professionals must be working in a healthcare system willing to meet the minimum standards. Finally the conditions to achieve health for everyone include the state's willingness and ability to establish safety and security for all.

Increasingly in settings of armed conflict, civilian hospitals and nonmilitary healthcare facilities have been the target of attacks. Indeed, the ongoing conflict in Syria is a case in point, where hospitals, their patients, and staff are subject to bombings, in violation of international law. The concept of total war upon noncombatants, as well as combatants, continues to be the reality in modern times, despite international agreements prohibiting such acts and signatories bound to provide these universal protections.

Technically, the main aim is to maintain the pre-crisis crude mortality rate (CMR) and under-5 mortality rate (U5MR) or at least attempt to prevent these mortality rates from doubling. Different types of disasters are historically associated with different patterns and a different magnitude of mortality ([7], p. 293). The public health impact and subsequent medical services response must vary accordingly. The baseline CMR and U5MR also, unfortunately, vary across the globe ([7], p311). The U5MR is a more sensitive indicator of the severity of a disaster, as the most vulnerable are most at risk. In settings where the baseline rates are unknown or of uncertain veracity, agencies should aim for a CMR of no higher than 1.0/10,000/day and a U5MR of no higher than 2.0/10,000/day [7].

Common to the problems of water, food, and shelter, the initial medical service response begins with an assessment of need and residual capacity. Conditions of VUCA arise from a breakdown of timely and accurate information, with a multi-sectoral assessment critical from the outset.

Upstream of the disaster, the lifesaving meta-leadership of preparedness increases in value with an early warning system. Contingency planning, stockpiling, establishment, and maintenance of emergency response teams will shorten the response times. Smooth operations likewise are more likely with advance planning in communications, information management, and coordination management. For a variety of reasons, the ideal preparations of community training, personnel training, drills, and exercises are rarely in place. Likewise, the enforcement of building codes can dramatically reduce the number of deaths and serious injuries in

earthquake-prone areas, with emphasis upon preserving critical infrastructure such as hospitals [7].

Communicable diseases tend to increase mortality and morbidity in disasters. In conflict settings, between 60 and 90% of deaths are attributable to four infectious causes: acute respiratory infections, diarrhea, measles, and malaria were endemic. Acute malnutrition exacerbates the mortality rate of these diseases, particularly for the under-5 population.

Outbreaks of communicable diseases are less common in the setting of acute-onset natural disasters. When they do occur, it is usually in the setting of population displacement, overcrowding, inadequate shelter, insufficient and unsafe water, and sanitation [7]. The cholera outbreak following the hurricane in Haiti is a recent example.

Injuries are the major cause of excess mortality and morbidity in acute-onset natural disasters. Mass casualty events following natural disasters usually create more patients than the capacity of the existing or residual local healthcare system can treat. Most injuries that occur in armed conflict settings usually occur in insecure regions making transport to medical facilities very difficult [7].

Mental health problems occur in all humanitarian settings [7]. The VUCA on a personal scale means witnessing the horrors and loss, unrelieved by any sense of when relief will arrive and security and safety restored. Increasingly behavioral health supports are embedded within a more robust, multi-sectoral humanitarian response. Consideration must also be given to people living in behavioral and mental health institutions. In an acute crisis, the risk of severe neglect and abuse is very high. The same rights to water, food, sanitation, and medical services apply to these institutionalized populations. In a VUCA setting, in the acute response with a scarcity of resources, the needs of the entire spectrum of the population must be kept front and center. Once again, a public health perspective sees the value of community-level self-help and social support. A deeper discussion of psychological first aid and basic mental healthcare is beyond the scope of this chapter.

## Summary

In a disaster, whether natural or complex (armed conflict), the pre-existing public health infrastructure will be variably disrupted. VUCA is a term borne from the military world, describing characteristics of “volatility, uncertainty, complexity, and ambiguity” that are shared with a disaster.

The basics of water, food, shelter, and medical services must be rapidly restored to save many lives and alleviate suffering for the affected population.

The humanitarian response has evolved over the centuries. There are organizations whose names are familiar, such as the United Nations, as well as the Red Cross movements. There also exists a vast ecosystem of government agencies, nongovernmental organizations, and faith-based organizations working to provide humanitarian assistance. The complexity of organizing a coordinated response across a

patchwork of sovereign states, as well as international, regional, and national agencies and organizations, is the focus of much collaborative transnational actors and continues to evolve.

The United Nations Cluster Approach aims to improve the coordinated response to a disaster, by reducing both gaps in response and redundancy at the field level. The clusters group relevant transnational actors in a given sector, such as emergency food aid, to work with the national governments and civil society. The cluster must rapidly assess, deliver, monitor, and evaluate an approach that incorporates the needs and abilities of the affected population. In concert with improved delivery of care consistent with a human rights-based need, relevant actors must accept responsibility to the affected communities for their performance.

The Sphere Project's philosophy rests on two core beliefs: "first, that those affected by disaster or conflict have a right to life with dignity and, therefore, a right to assistance, and second, that all possible steps should be taken to alleviate human suffering arising out of disaster or conflict" [7].

The Sphere Handbook is a consensus document improved by continuous updates over the years. *The Humanitarian Charter and Minimum Standards of Humanitarian Response* in four dimensions (water and sanitation, food and nutrition, shelter, and health services) are used for planning, as a field manual, and for monitoring of the response.

A human rights-based approach is a key feature of modern humanitarian response to disasters. Vulnerable, marginalized subgroups within the affected population are increasingly highlighted for attention, as baseline disparities may be magnified with a disaster, leading to even higher excess mortality. Finally, there is now a necessary and welcomed emphasis upon behavioral and mental health needs acutely and longer term for the affected population.

Going forward, the value of meta-leadership is seen in response to VUCA humanitarian response scenarios, to purposefully build bridges ahead of time, fostering collaboration leading to a more efficient and coordinated humanitarian response. A rights-based and person-centered humanitarian response, with greater accountability for performance, will continue to evolve.

## References

1. How are disaster relief efforts organized? – Cluster Approach and key actors. Retrieved from <https://business.un.org/en/documents/6852>.
2. The World Bank: Water Home, Overview. Retrieved from <http://www.worldbank.org/en/topic/water/overview>, Last Updated: 4/11/18.
3. Bennett N, Lemoine GJ. What VUCA really means for you. *Harv Bus Rev.* 2014;92:27.
4. Lawrence, K. Developing leaders in a VUCA environment. 2013. Retrieved from [http://execdev.kenan-flagler.unc.edu/developing-leaders-in-a-vuca-environment?hsCtaTracking=ff062d8b-15f8-4f05-95d1-a1f18cddb0d7%7C43249249-70a3-4775-a521-1df0af8bad6f&\\_\\_hssc=10393834.c8fd5a65e1e3e13bca74c122a117279f1478213947457.1488036762810.14881226893123&\\_\\_hssc=10393834.3.1488122689312&\\_\\_hsp=4290146262](http://execdev.kenan-flagler.unc.edu/developing-leaders-in-a-vuca-environment?hsCtaTracking=ff062d8b-15f8-4f05-95d1-a1f18cddb0d7%7C43249249-70a3-4775-a521-1df0af8bad6f&__hssc=10393834.c8fd5a65e1e3e13bca74c122a117279f1478213947457.1488036762810.14881226893123&__hssc=10393834.3.1488122689312&__hsp=4290146262).

5. OCHA, U. N. OCHA Cluster Coordination. Retrieved from <http://www.unocha.org/what-we-do/coordination-tools/cluster-coordination>.
6. The Sphere Project. 2007. Retrieved from <https://www.youtube.com/watch?v=s12aOrkZub4&t=311s>.
7. The Sphere Project: Humanitarian Charter and Minimum Standards in Humanitarian Response. Rugby, United Kingdom: Practical Action Publishing. 2011.
8. The United States Geological Survey. Water questions & answers: how much water does the average person use at home per day? 2016. Retrieved from <https://water.usgs.gov/edu/qa-home-percapita.html>, Last Updated: December 2016.
9. Humanitarian Response. Why do we need the cluster approach? 2017. About Clusters. Retrieved from <https://www.humanitarianresponse.info/en/about-clusters/why-do-we-need-the-cluster-approach>.

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# Chapter 10

## Military Medicine and Global Health: A Core Competency



**Michael W. Brennan**

*Service to others is the rent you pay for your own room here on earth – Muhammad Ali*

The foreign engagement of the US military in any capacity always arouses interest and often suspicion. Even participation in global health engagement(s) challenges many purists who feel that military medicine means direct care to the fighting force and that the humanitarian realm is an inappropriate domain for military personnel. Notable members of this population include selective nongovernmental organizations (NGOs). Their vision of the motivation and stance of humanitarian endeavors is one of strict impartiality, neutrality, and the apolitical approach. In many cases, the civil healthcare sector even feels that the military is unprepared and unpracticed technically and clinically. This chapter's goal is to change that perspective by providing an exposition of global military health engagement well beyond but certainly including humanitarian assistance and disaster relief (HA/DR). Additionally it is recognized that more intensive multilevel collaboration among Department of Defense (DoD) health professionals, USAID-sponsored organizations, and State Department diplomats can mediate and enhance acceptance of the military as a global health enabler.

Let's begin with the assertion that active and reserve military personnel comprise one of the most healthy segments of the nation's population, considering diversity of background and current professional capacities. Media promotions aside, observing soldiers, sailors, and airmen in action, at home and overseas, reveals attention to high personal health standards. Notably, by demonstrating this globally, they reflect highly at least the intent of our national health policy, from nutrition to physical fitness and lifestyle to performance.

Before featuring HA/DR activities, it is appropriate to discuss the variety of global military medicine capacities sometimes hidden in obscure outposts or not receiving appropriate media consideration. Medical research is a well-recognized

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military hallmark with major clinical advances attributable to military personnel and the target of numerous programs. State-of-the-art burn management has brought global recognition and multinational referrals to Brooke Army Medical Center at Ft Sam Houston, San Antonio, Texas. Many of these injuries are the result of natural disasters and civil conflicts. Not surprisingly, military medicine has advanced trauma management with battlefield-response and surgical techniques. Aerospace medicine and hyperbaric treatment are additional relatively distinctive domains where military medicine is at the forefront. Unique geographic deployments have enabled US military medicine to be at the vanguard of both infectious disease and preventive medicine. Decades of public health engagement and assistance in high-risk environments have afforded unique experience in both immunization and sanitation strategies and realities.

From a logistics perspective, military medicine essentially invented the concept and construct of the air ambulance as an evacuation vehicle. Vietnam's terrain and the nature of insurgency operations were coupled with advances in aviation and with the advent of versatile rotary wing aircraft plus the participation of highly skilled aviators and medical corpsmen. Together innovation in equipment and advance training of personnel led to new approaches to medical transportation. In concert with strategically placed combat medical facilities, trauma care development received a major transfusion of time and talent, program placement, and management. Air, sea, and land mobility with the most advanced navigation, propulsion, and deployment capacities enable medical service provision anywhere, anytime.

Military medical education was transformed within the last decades with the dedication and establishment of the Uniformed Services University of the Health Sciences (USUHS) and the Defense Institute for Medical Operations in Bethesda, Maryland, in 1984. Combining the capacities of Walter Reed Army and Bethesda Navy medical centers, the military now educates at a Liaison Committee on Medical Education (LCME)-accredited medical university and supports a wide variety of similarly accredited allied health degrees. Accreditation Council for Graduate Medical Education (ACGME)-accredited residencies remain united with service respective regional medical centers, Army, Navy, and Air Force. USUHS was established as the armed forces medical leadership realized that an internal medical college education would allow the branches of service to essentially establish a career-oriented pathway for healthcare professionals, whether physician, nurse, or technician.

Recognizing the need to accelerate global health capacity at the career military physician leadership level, the three service academies, West Point, Annapolis, and the Air Force Academy, currently nominate approximately half of the entry class to USUHS. Institution graduates generally serve 20 years and beyond due to both entry background and educational commitment requirements. Their relationships with field unit nonmedical colleagues enable military medicine leaders to occupy a unique position in any global engagement whether a standard deployment, combat operation, or humanitarian/disaster relief mission. Recognizing that mutual engagement in a humanitarian intervention would be inevitable in an officer's career,

whether medical corps or infantry, all the academies have developed a civil-military operations element in their undergraduate Cultural Geography core education. The objective of this course is illustrating the interaction of “civilian” medical service providers with military resources in both civil and natural disaster interventions.

USUHS also supports and staffs the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), integrating active participatory course content into the medical university curriculum for multiple provider levels. The following extract from the USUHS website provides a selection of activities that engage all healthcare professionals at the university from the microbiology laboratory to nursing and clinical medicine specialists [1]:

- Avian Influenza/Pandemic Influenza (AI/PI) Program
- Defense Medical Language Initiative (DMLI) Health Language and Culture Curricula
- Cooperative Biological Engagement Program (CBEP) for the Defense Threat Reduction Agency (DTRA)
- US Africa Command Pandemic Response Program (PRP)

*US Africa Command Pandemic Response Program (PRP)*, in partnership with CDHAM, promotes stability and security and enhances African partner nations’ military capacity to plan for and respond to a pandemic disaster. CDHAM, as part of USUHS, assists in development of comprehensive educational programs in Disaster Management and Pandemic Crisis Response for both civil and military authorities.

PRP is executed via a strategic whole-of-government approach and fosters synchronization of national and regional level preparedness and response plans. It is conducted in collaboration with other interagency and international partners, who share the same end states, to strengthen partner nations’ capacity to respond to a pandemic disaster and to mitigate threats to stability and security. PRP Concept of Operations.

On the global theater level, geographically deployed theater combatant commanders facilitate military physicians participating in peacetime regional/national medical and surgical “teach and train” excursions. Coordination through host national specialty societies and governmental authorities enables proper credentialing as well as predetermined pre- and postoperative responsibilities. Naval hospital vessels, US Comfort And US Naval Ship Mercy, provide surgical theater capacity, and the USAF coordinates airmobile operative or teaching venues. Strict limits insure that these deployments do not detract from the principal duty of direct medical and surgical care for active duty and retired military populations at home and the deployed forces and families abroad.

To conclude this preamble, military medicine is active globally in a state of readiness at all times and is furthermore designed and dedicated to offer appropriate and integrated humanitarian assistance/disaster relief (HA/DR) when challenged, when invited, and notably when directed by both civilian executive authority and military command orders. Having referred to our engagement in Vietnam, it is appropriate to depict an early “modern era” humanitarian assistance project, Operation New Life,

**Fig. 10.1** Military medicine in humanitarian missions



the medical care of more than 100,000 Vietnamese refugees, evacuated to the United States in the mid-1970s (Fig. 10.1).

This section begins with the charter and ultimate directive for the United States to involve its military medical capacity in providing humanitarian assistance and disaster relief (HA/DR). Structural features of the military as well as roles and relationships of various US governmental entities will be described focusing on military integration and coordination. Military intervention will focus on unique capacities as well as sequence and duration of resource provision. Examples from interventions since the 1960s and Vietnam but focused within the last decade serve to illustrate both the challenges and successes of military medicine as a rapid and ready global medical response force.

Though long assumed to be available, the United Nations Office for Coordination of Humanitarian Assistance formally codified Relief Capacity in 1994 through the Oslo Authority. Relief comes with the following conditions: relief is requested by the host government, provides a unique capability, responds to distinct need, and includes a terminal timeline [2]. The mobilization and foreign deployment of the US military through the Department of Defense is ulti-

mately a US presidential decision. However, the long-standing authority of the Department of State to manage foreign affairs engages its principal intermediary, the US Agency for International Development (USAID), in decisions regarding HA/DR commitments. Within USAID, the Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA) and ultimately the Office of Foreign Disaster Assistance (OFDA) authorize and manage Disaster Assistance and Response Teams (DART), principally in administrative roles and oversight responsibility. Cross coordination takes place with similar structural entities with the Department of Defense and facilitates roles and responsibilities. The small fraction of “disaster budget” that reaches the recipient is easily understood. Budgeting for DR is embedded within the Department of Defense budget. DoD ultimately receives annual authorization and appropriations in anticipation of anticipated foreign Disaster and Civic Aid.

With respect to HA/DR, the architecture of the US military features the Joint Chiefs of Staff directing the resources of the various services, Army, Navy, Air Force, and Marines. These units and individuals are mobilized through multiservice geographic combatant commands [2].

The Commands related to recent civil and disaster responses are the Central Command (Iraq and Syria), Southern Command (Haiti earthquake), Africa Command (Ebola and Boko Haram), and Pacific Command (Indonesia-Japan tsunamis; Philippine typhoons). Regional combatant commanders, faced with a valid response request, have at their disposal a variety of military humanitarian components, some directly attached to a specific service unit and many multi-service, multi-purpose. A prime example of the detached would be the Ft Bragg, NC-based, on-call, Global Response Force [3], a special purpose, situation-tailored, Airborne, Army brigade combat team capable of deploying within 24 h. This Force provided security and operational capacity of the Port-au-Prince airport in response to the Haitian earthquake. Having an operational airport was the highest initial priority to enable subsequent assistance.

Additional military structures offer tailored Global Health Engagement including Special Operations Command (covert forces), US Air Force Logistics Command, US Naval Hospital, and Logistics vessels. Activation is through Executive Order followed by Defense Department Directives and always including State Department collaboration. Department of Homeland Security assets are often a paramilitary complement in foreign disaster incidents. Though primarily responsible for border security and national disaster response, in the aftermath of the 2010 Haiti earthquake, Coast Guard vessels were both proximate and available. Their crews facilitated the opening of ports and the evacuation of US citizens. Likewise, FEMA, the Federal Emergency Management Agency, was activated for Haiti and operated an interagency task force to monitor and manage multi-governmental agency (including military) supply distribution and deploy search and rescue teams. US military medical support included reserve military personnel volunteering for Department of Health and Human Service DMATs and IMSURTs (International Medical Surgical Response Teams) and thus collaborated with the entire spectrum of US Governmental Departments [2].

This is an appropriate juncture to review the recurring arguments for and against military accompaniment to US HA/DR programs. While assisting foreign, civilian populations affected by civil or natural trauma, a moral proposition would call for maximum potential and reasonable effort. Military capacities are often considered more political and strategic to US governmental interests than humanitarian and benevolent capabilities [4]. A question to be asked is, “Is this a national interest or human interest and does the military represent a governmental force more than a helping hand?” Given the range and readiness of response capacity and the relatively recent advances in interdepartment and interagency collaboration, the military contribution seems accepted as vital. Military capacities and resources employed in HA/DR activities remain coordinated through the State Department. Somewhat esoteric but vital adherence to the following principles would serve to keep military contribution relatively nongovernmental: humanity, impartiality, neutrality, independence, and empowerment.

Likely because of the uniform, military medical resources often polarize and may destabilize the areas to which they are called. In general, military personnel should always act to support US and other foreign government civilian services in concert with host nation authorities and agencies. Adamantly neutral entities such as Medecins Sans Frontieres (MSF; Doctors without Borders) and the International Commission of the Red Cross (ICRC) are the most likely to describe civil-military friction. The deluge of recent interventions and the need for human and materiel resources have meant that military involvement has prevailed. A national specialty medical society, Special Operations Military Association, has notably acted to engage the range of global health resources off the battleground and beyond the disaster scene with significant advancement in communication, collaboration, and mutual respect among disaster responders [5].

This chapter’s conclusion will attempt to address US military best practice patterns and procedures. Military intervention can generally be categorized as direct, indirect, and support, whether humanitarian or disaster oriented. Examples of direct support include the operating theaters aboard the US Navy Ship Comfort (Fig. 10.2), offshore Haiti, and, earlier, the US Navy Ship Mercy, offshore Indonesia. Multiservice air evacuation and multi-specialty (military and civilian) surgical and medical teams ably provide inestimable resources. Project HOPE’s long-standing close relationship with military medicine in many theaters (Iraq, Afghanistan) forged the professional relationships to integrate civilian and military surgical teams aboard the Comfort, supplementing Naval surgical capacity with civilian volunteer medical teams [6].

Indirect services are best exemplified by the rapid transport capacities of multi-service air.

Evacuation crews (Fig. 10.3) and the Navy underwater teams clearing the critical shipping harbors of Port-au-Prince for naval re-supply, civil and military, post-earthquake. The joint rapid deployment of USAF air traffic controllers coupled with 82nd Airborne soldiers enabled re-opening of the Port-au-Prince airport in record time to receive vast global resource deliveries of life-saving medicine, water, tents, blankets, and all the other necessary items to sustain the people.



Fig. 10.2 US navy ship Comfort

Fig. 10.3 Air evacuation



Not formally described as a military medicine capacity is the predominantly indirect role of retired, military physicians who remain engaged through roles facilitated by nongovernmental organizations. Serving as volunteers but engaged through their global specialty organization relationships and their NGO (International Medical Corps) sponsorship, they offered connections to US Military Medical Staff (US Navy Ship COMFORT) for Haitian NGOs and host national medical and surgical specialty societies. Initially they served to coordinate postoperative care onshore to free surgical patient capacity aboard the medical relief ship; the relationship later led to reconstitution relationships. In Haiti, the response was multi-specialty incor-

porating many volunteers (former military personnel, now NGO facilitated), surgeons, internists, gynecologists, and pediatricians.

In the Japanese tsunami relief, retired military first responders, enabled by Project HOPE and interacting with the Japanese Ministries of Health and State, determined less need for surgeons and more impact from psychiatric specialists due to the shoreline devastation of the adult workforce and the survival of children and elderly. This prompted a call to the American Psychiatric Association to identify a cadre of Japanese-speaking volunteer psychiatry colleagues to donate counseling capacities.

Heavy Logistics capacity is a prime component of the support category of humanitarian service. Military air and sea resources for transport are renowned and unmatched, in capacity, variety, and responsiveness. Physical security alone is always a major “support” resource, and notably in Haiti, it was an essential element as the earthquake in its destructive swath across Port-au-Prince fractured prison walls releasing thousands of surprised prisoners. US Military Police (MPs) were first responders. Serving medical care providers, MPs rapidly secured major roadways, escorted ambulances, and acted as groundskeepers controlling all access to the central Port-au-Prince Hospital, HUEH (Fig. 10.4). With their armed but respectful presence ready to engage, chaos was controlled, prioritization was enabled, and security was assured.

Earlier the Indonesian response offered another perspective on military medicine as a multivariate resource. Active duty and retired/recalled military offered direct surgical and medical care aboard US Navy Ship Mercy, but in arriving 6 weeks post-tsunami, many field hospitals had been established, so the US “warship” was perceived to be competitive. Many complex surgical repairs were accomplished, but relative to capacity, the ship was underutilized. The inability to accommodate families also presented a sociopolitical issue. On the resourceful side, biomedical engineering capacities were exceptional in dealing with medical devices, demonstrating that all medical support is definitely not based on life-saving surgery [7].

**Fig. 10.4** Military police presence in Port-au-Prince Hospital



Military medical teams often provide more community relations and nation building through public health interventions. Such place-based services are often a more critical issue in the aftermath of natural disasters. In Haiti this took the form of cholera management, both treatment and prevention. In Indonesia a more complex issue arose with the variable community health services provided by US military medical teams to rival Indonesian factions. Despite attempts to serve all populations, medical relief often triggered cries of non-neutrality at both national and community levels regarding relief provision to separatist forces versus the Indonesian military.

To conclude the section on disaster response, some general observations and principles are of benefit. The military stages of humanitarian medical reaction in natural disaster as follows:

Response: Save lives, Provide security and direct services, Aid survivors; Coordinate with “all” UN, US, Host and NGO resources.

- Relief: enhance indirect and supply resources; engage host capacity.
- Restore: empower host colleagues and organizations plus NGOs.
- Recovery: transition to coordinator as opposed to provider; delegate to successors.

Before departing the disaster relief arena, it is appropriate to briefly describe the capacities and activities of foreign (non-US) military medicine entities as well as their relationships with our civil and military resources. In the well-orchestrated Relief Theater, the United Nations engages all responders through the Office for the Coordination of Humanitarian Affairs (OCHA) and as appropriate offers further collaboration through the United Nations Civil Military Coordination [2]. Without elaboration as to each country’s capacity and responsiveness, suffice it to say that major national military forces maintain rapid response, mobile, field hospitals along with the appropriate security cadre. These entities gained development and deployment in WW2 by a variety of nations but became quite notorious in Vietnam with the Mobile Army Surgical Hospital (MASH) distinction. Though designed and dedicated to the sponsor’s military medical needs, treating any injured including civilian casualties was the rule.

In recent years, nations have reserved Mobile Hospitals, including standby medical manpower, in readiness for disaster response. A very noteworthy example is the Israeli Defense Forces (IDF) Field Hospital that has achieved the distinction of first to be declared a World Health Organization Level 3 facility [8]. In Haiti within 48 h of notice, it was deployed at the just-opened, frenetic airfield and ultimately served 1100 patients in 10 days with 90 beds and 2 operating rooms. Similarly, following the Japan tsunami, the IDF Hospital arrived within 2 weeks and deployed at a very remote plateau above a destroyed harbor village. It essentially served for days as the only field casualty recovery site offering OR capacity. Notably the Chinese Navy offered the services of a full-capacity offshore hospital ship, but the resource was declined. In summary, essentially, all nations with a robust military have developed a humanitarian disaster capacity, and at least 25–30 nations have offered such medical relief.



There remain instances where host authorities are suspicious that “foreign” military presence is indicative of a national interest whether social or political—as opposed to a genuine humanitarian effort.

From the perspective of the service provider, foreign military medical resource commanders struggle with either the absence of or the awkward delivery of appropriate “central” coordination or, in military lingo, lack of “command and control.” Civil versus military, host versus global provider, and friend versus foe parallels are a challenge to the military medical commander. As the Israeli Defense Force medical commander in Port-au-Prince, Haiti, learned the standard complexities of medical decision-making to include triage, management, and disposition in a strange new world were overridden by multinational, sociopolitical factors.

Leaving the disaster scene, the concluding military humanitarian medical dimension to be discussed is the role in the various stages of civil conflict from nation building through low-intensity engagements to outright combat zone activities. The preface is that military medicine’s primary mission is the support of the soldier, sailor, and airman in military deployments. The corollary, however, is that any military medic is also first bound by his or her humanitarian ethic.

As the Oslo Doctrine guides military engagement in disaster relief, the multiple iterations of the Geneva Convention guide the principles of cross-border intervention. In effect, however, authorization of any US military action, including medical resources, is initiated and directed through the executive branch of government and ultimately through Defense Department command.

Legal authority for the US military to engage is in the US Code, Title 10, Humanitarian and Civic Assistance. Remembering the oft-quoted civil-military discord in humanitarian roles, the US Ambassador is the official “abroad” representative of the US Government and is directly responsible for US policy in that country [2].

US Military Medical forces have been deployed on the global stage as early as the 1920s well before USAID and the Peace Corps could object. In the post WWI theaters of Eastern Europe, Army Medical officers established an American-Armenian refugee hospital, and the American-Polish Relief Expedition was developed to combat typhus [4]. Later similar US military assistance was distributed in Russia in 1923 including preventive health measures, vaccination, and sanitation capacity. Leadership in the United States recognized the value as a foreign policy tool [4].

The next chapter of Military Medicine’s “nation building” spanned the post WW2 decades through Vietnam. As global powers challenged and often entangled in limited geographic domains such as Korea, the Philippines, and Central America, the Department of the Army engaged military units and often their medical capacities in a variety of civil affairs exercises, highlighted by President Kennedy’s National Security Action Memorandum [4]. When conflicts escalated, the role of medicine was embodied as supplying, training, and advising host country providers through Medical Civic Action Programs (MEDCAPs) [9]. Relatively unsuccessful due to the total Vietnam outcome, they served as a platform for subsequent foreign relations and the ultimate employment of the Special Operations forces—lower profile,

quick reaction, field medicine capable—ideally suited for Cold War counterinsurgency environments.

Military medicine subsequently engaged in countless medical readiness training exercises in Central American nations, most notably Honduras and El Salvador [4]. Internal and external assessments extolled public relations, host nation medical professional training, and general improvement in national health status but also recognized several common negative reactions: “giving away of unwanted supplies, cultural insensitivity, and short-term approach.” While competitive NGOs did not have the same logistics or field medical capacity as the military, their public health roles demonstrated capacity building, continuity, and generally a more caring engagement. Competition for the hearts and minds was always a guiding national/political interest of the governmental funding whether through civilian or military middlemen. Another conclusion from engagements in this era was that the intensification of the Vietnam counterinsurgency to true military combat exposed fragile and vulnerable civic action programs.

Private and voluntary organizations invoke the Geneva Conventions to preclude military resources from civil conflict humanitarian relief, insisting on independence from any party in the conflict—quite difficult in light of vast governmental or sociopolitical funding for almost any and all actors, even humanitarian, on the battlefield.

MEDCAPs were succeeded by structural and philosophical changes—less civic action and more direct medical capacity building—in global engagements with the term medical readiness training exercise (MEDRETE) [9]. These efforts persisted in Central America and initiated in Africa, the Middle East, and Asia. Additional examples included military surgical teams training global colleagues during multinational excursions with US Navy Ships Mercy and Comfort and US Air Force Mobile Hospitals. In the interest of furthering both US diplomatic and security goals, the military combatant commander for the geographic region engaged with the US Ambassador to combine military and civilian capacities. Not surprisingly other major global powers extended their geopolitical dimension with medical outreach through military muscle, notably the Australian, British, and French. Proactive through their advocacy for “droit d’ingerence” (the “right to interfere” in humanitarian crises), the French are heavily engaged in the former colonial areas of West Africa, a most turbulent and needy region with medical vulnerability recently exposed by insurgent military and viral infectious challenges [4].

Always ready to reflect and reorganize and prompted by former Defense Secretary Robert Gates, military medicine has undergone an inside and outside assessment of humanitarian assistance effectiveness. This has occurred in the midst of almost two decades of intensive demand of military medicine combat theater deployment and consequent minimal capacity for low-intensity theater engagements. Now known as Military Humanitarian Medical Operations (MHMOs), the changing label reflects the military need for a contemporary pneumatic for every era [9].

The DoD leadership expressed concern for diversion of resources from the real mission of operational medical readiness. On the ground the “unreasonable expectations” of host nations and their physicians coupled with difficulties in documenting changes in clinical outcomes or national health status confounded grading the MHMO. While compiling HA deficiencies and seeking alternatives, several interventions in Iraq altered the approach to combat zone military medical assistance beyond direct care.

Lesho and colleagues describe the “collaborative medical engagement” where active duty military medicine physicians visit host physicians in their communities for total stakeholder inclusion and face-to-face dialogue [10]. In this model host physicians accompany patients in need of advanced surgical procedures to the capable US medical facility, and the guest physician teaches/supervises/advises host personnel. Assembling similar specialty colleagues for “Continuing Professional Development” discussions ensues in the host medical facility.

CDHAM and USAID have reviewed and positively scored this revised humanitarian approach recognizing the need for bilateral accreditation, certification, licensure, and credentialing.

Stakeholder inclusion and ultimate host “ownership” of the capacity-building effort is the goal.

An applied variant of this concept is the joint Defense and State Department Project entitled “Medical Alliance for Iraq” initiated by the Surgeon General of the Army and the Senior Military Medical Advisor, Baghdad, in 2003. The activity amplified the Continuing Professional Development philosophy of contemporary medical ethics as well as the need to personally engage the host physician community from the start. Supported by the Department of Defense, a national Iraqi physician forum directed by two dozen (many retired) military physicians was conducted in Baghdad (2004) for 500 Iraqi specialty society leaders from across the country (Fig. 10.5). Diverse representation offered widespread clinical stakeholder insight and identified greatest clinical educational needs for 12 major specialties. Through a State department grant, US and UK volunteer physicians conducted approximately 60 specialty-tailored 1-week teach and train (CPD/CME) sessions offering nonclinical content such as medical ethics and clinical guidelines along with principles of accreditation and certification as well as state-of-the-art surgical techniques [11]. Serving Baghdad, Basra, and the Kurdish regional capital, Erbil, they exemplified inclusion across sociocultural divisions. Next-generation and female physicians were included and empowered. US national specialty societies offered electronic access to educational content plus telemedicine and global exchanges for conferences and fellowships.

Through active combat zones and timeframes, the implementation was logistically supported by the global NGO, International Medical Corps, but the vision and implementation were driven by national military medicine leadership and a willingness to recognize that different battlefields deserve different approaches. In Iraq’s high-intensity combat, active duty military and even reserve medical officers were overtaxed and over-deployed. Iraqi physicians were eager for external medical professional relations after years of sanction. Continuing Professional Development



**Fig. 10.5** Baghdad medical forum, volunteer physician briefing FEB, 2004

activities within specialties and among these same physician leaders persist to this day and are now employed to assist with northern Iraq's recent refugee crisis. The willingness of volunteers to return for multiple engagements fostered enduring collaboration facilitated by military medicine and USAID. This model has been employed in Afghanistan, Haiti, and Libya with less success but offering formative, trusting, personal, and professional relationships.

In summary, military medicine offers a valuable humanitarian dimension in both natural and civil disaster and civil environments. Bridge building before the tsunami tide encroaches or the earth quakes is the answer to successful deployment of all resources. Several measures could be accomplished by DoD to positively impact HA/DR authority, strategy, and outcome:

1. Update the statutory DoD Directive defining nature and limits of DoD response
2. Create an "international framework for foreign HA/DR," including USAID, DoD, other government agencies and NGOs—similar to the National Response Framework
3. Ensure all senior military commanders are charged with roles and responsibilities for rapid deployment of resources
4. Ensure that response-designated, military medical professionals are culturally and professionally prepared to serve in humanitarian roles
5. Report outcomes, reassess structure and function, and remodel regularly

Finally, it is well recognized in global diplomacy that "trusting personal relations" between host nation and global humanitarian volunteer, whether senior officials or

military doctors caring for civilian patients, is the foundation of successful professional response and capacity building. The same principle should apply to the various governmental and nongovernmental providers of HA/DR. Confidence through communication and collaboration is more important than capacity and control.

## References

1. Cullison T. Global health engagement: a military medicine core competency. Washington: National Defense University Press; 2016.
2. Cecchine G. The U.S. military response to the 2010 Haiti earthquake. Santa Monica: Rand; 2013.
3. Flynn C. Joint operational access and the global response force. *Mil Rev.* 2013;7:38–44.
4. Zajchuk J. Military medicine in humanitarian missions. *Mil Med Ethics.* 2003;2:773–802, Chapter 24.
5. Anderson W. Special operations medical association forum. 2016.
6. Schear JA. Haiti's 2010 earthquake and the U.S. response: lessons for Asia Pacific disasters. Banyan Analytics Brief. 2015.
7. Joyce N. Civilian military coordination in the emergency response in Indonesia. *Mil Med.* 2006;171:66–70.
8. Merin O. The Israeli field hospital in Haiti—ethical dilemmas in early disaster response. *N Engl J Med.* 2010;362:38.
9. Waller S. a new paradigm for military humanitarian medical operations: mission-generic metrics. *Mil Med.* 2011;176(8):845–51.
10. Lesho E. Toward a better approach to medical humanitarian assistance in Iraq and future counterinsurgency operations. *Mil Med.* 2011;176(1):1–3.
11. Rashid T, Hasoon T, Aziz S, Ansari W, Ferati A, Torbay RT, Brennan MW, Jawad M, Evans GE, Donaldson RI, Ferry RJ. A meeting presentation Endocrine Society's 96th Annual Meeting and Expo, June 21–24, 2014 – Chicago. SUN-0460: Continuous professional development in Iraq (2007-10): Peacebuilding By Volunteer Physicians in an Active Conflict Zone.



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# Chapter 11

## The Role of Professional Societies in Achieving Global Health Security: Validating a Discipline of Disaster Medicine and Public Health



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*Inaction is not a real option but rather an illusion, one maintained with difficulty in even the tallest ivory towers or most gated retreats.* – Paul Farmer's Reimagining Global Health

Following the events of September 11, 2001, interest in and support of preparedness and response activities have increased dramatically and have involved virtually every nation and, to a varying extent, every sector of society. Parallel with this, the number, intensity, and impacts of catastrophic events have also increased. From 1970 to 2004, natural disasters (geophysical plus climate) have increased from an average of 78–348 annually, and since 1990, some 200,000 million people have been affected every year. There are many factors contributing to this, among them are increased and better documentation of events, the continuing dramatic growth in human populations, increased urbanization, the migration of people to coastal areas, the rapid movement of people and material around the globe, and, of course, the multidimensional effects of global warming (Borgen Project) [1]. Changing weather patterns have contributed to drought, epic storms, and other unprecedented events such as the wildfires we have seen in the Western United States, and a major metropolitan area in South Africa is virtually running out of water.

This does not even take into account the catastrophic impacts of infectious disease and man-made events such as war, terrorism, and ethnic cleansing leading to ever-increasing morbidity and hundreds of thousands of displaced persons and populations begetting secondary or sequential disasters, geometrically compounding the negative effects on human health and well-being.

United Nations Humanitarian Coordinator Stephen O'Brien reported that more than 10 million people across four countries in Africa and the Middle East are at risk

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of famine and starvation [2], and the Rt Hon Penny Mordaunt MP, the International Development Secretary for the United Kingdom, described 2017 as a year of harrowing humanitarian crises adding that 2018 could be even bleaker [3]. News from Yemen, South Sudan, Syria, Myanmar, and elsewhere bear out these dire predictions.

The rate and intensity of these events present significant threats to global health security. This still evolving concept – global health security – means many things to various individuals and constituencies. These definitional are well expressed by Aldis.

There are various and incompatible definitions, incomplete elaboration of the concept of health security in public health operational terms, and insufficient reconciliation of the health security concept with community-based primary healthcare. More important, there are major differences in understanding and use of the concept in different settings. Policymakers in industrialized countries emphasize protection of their populations especially against external threats, for example, terrorism and pandemics, while health workers and policymakers in developing countries and within the United Nations system understand the term in a broader public health context [4] (Aldis 2008). What is more important, however, is not the definition of global health security but its relationship to global health. This relationship is obviously complex and multifaceted and defies quantitative definition. It might best be understood Occam's razor, wherein the simplest definition might be the most valid. Utilizing this approach, global health might be looked at as a fixed variable or "health status" at a given time and in a defined space – population or subpopulation. Global health security becomes the totality of measures to protect that status from degradation through intended or unintended adverse advents. There are other expanded concepts of the goals of health security in terms of improving global health status and achieving equity, but these are outside of our purview. A final realization is that although global health security had its roots in control of infectious disease and pandemics, today we include all health threats [5].

Regardless of one's viewpoint, the concept of assured health and dignity common to all perspectives on global health security is destabilized by disasters which, by definition, are overwhelming events requiring external support. When looked at in totality, the study of such catastrophic events can be overwhelming and defies our ability as individuals to come to grips with it in a productive way that can mitigate their human and socioeconomic consequences. One approach would be to limit our focus to the role of one sector and to better define optimizing the impact of those comprising that sector. As the common component of all response and recovery efforts is minimizing the negative effects of catastrophic events on individuals and populations, the health sector cuts across all phases of preparedness and response efforts. This is not to ignore the critical interactions needed between multiple sectors but to better understand how to be better prepared as health professionals to contribute to best achieving global health security.

## **A Long Defining Journey**

What follows in many ways reflects a personal journey and that of my colleagues over the past 15 years in attempting to define and build a discipline of Disaster Medicine and Public Health. Our efforts will be presented in a roughly



chronological order from 2002, the year I joined the American Medical Association (AMA) as the Director of the Center for Disaster Medicine and Public Health, up to the present. Given the AMA’s mission, the original focus of our work was physicians, and the initial inquiries were centered around the AMA Code of Ethics and a physicians’ willingness and obligation to respond to catastrophic events. We conducted several surveys which documented that roughly 80% of physicians felt a need or duty to respond but that only 20% felt really ready to respond in terms of education and training [6].

This led to the creation of a series of courses developed in conjunction with the National Disaster Life Support Foundation ([www.ndlsf.org](http://www.ndlsf.org)): the Advanced, Basic, and Core Disaster Life Support suite of courses. Concurrent with this came an increasing appreciation of the fact that all disciplines, professions, and specialties of healthcare played a vital and necessary role in preparing for, responding to, and recovering from overwhelming events, and we adopted the mantra that every healthcare professional has a secondary specialty and that is Disaster Medicine and Public Health. It also became clear that in any event, an effective response was dependent on a ready, willing, and able health responder workforce supporting a Disaster Medical System. This conclusion highlighted the need for a cross-disciplinary set of core competencies that would serve as the necessary underpinnings of curricula in this area which led to the creation of an ad hoc cross-disciplinary committee that reported its work in 2008 [7], with an update and refinement in 2012 [8] that focused more on operational competencies.

Seven core learning domains were defined as shown in Table 11.1 [8].

**Table 11.1** Core competencies for all health professionals in a disaster

Competency domain	Core competencies
1.0. Preparation and Planning	1.1. Demonstrate proficiency in the use of an all-hazards framework for disaster planning and mitigation 1.2. Demonstrate proficiency in addressing the health-related needs, values, and perspective of all ages and populations in regional, community, and institutional disaster plans
2.0. Detection and Communication	2.1. Demonstrate proficiency in the detection of and immediate response to a disaster or public health emergency 2.2. Demonstrate proficiency in the use of information and communication systems in a disaster or public health emergency 2.3. Demonstrate proficiency in addressing cultural, ethnic, religious, linguistic, socioeconomic, and special health-related needs of all ages and populations in regional, community, and institutional emergency communication systems
3.0. Incident Management and Support Systems	3.1. Demonstrate proficiency in the initiation, deployment, and coordination of national, regional, state, local, and institutional incident command and emergency operation systems 3.2. Demonstrate proficiency in the mobilization and coordination of disaster support services 3.3. Demonstrate proficiency in the provision of health system surge capacity for the management of mass casualties in a disaster or public health emergency

(continued)

**Table 11.1** (continued)

Competency domain	Core competencies
4.0. Safety and Security	<p>4.1. Demonstrate proficiency in the prevention and mitigation of health, safety, and security risks to yourself and others in a disaster or public health emergency</p> <p>4.2. Demonstrate proficiency in the selection and use of personal protective equipment at a disaster scene or receiving facility</p> <p>4.3. Demonstrate proficiency in victim decontamination at a disaster scene or receiving facility</p>
5.0. Clinical/Public Health Assessment and Intervention	<p>5.1. Demonstrate proficiency in the use of triage systems in a disaster or public health emergency</p> <p>5.2. Demonstrate proficiency in the clinical assessment and management of injuries, illnesses, and mental health conditions manifested by all ages and populations in a disaster or public health emergency</p> <p>5.3. Demonstrate proficiency in the management of mass fatalities in a disaster or public health emergency</p> <p>5.4. Demonstrate proficiency in public health interventions to protect the health of all ages, populations, and communities affected by a disaster or public health emergency</p>
6.0. Contingency, Continuity, and Recovery	<p>6.1. Demonstrate proficiency in the application of contingency interventions for all ages, population, institutions, and communities affected by a disaster or public health emergency</p> <p>6.2. Demonstrated proficiency in the application of moral and ethical principles and policies for ensuring access to and availability of health services for all ages, populations, and communities affected by a disaster or public health emergency</p>
7. Public Health Law and Ethics	<p>7.1. Demonstrate proficiency in the application of moral and ethical principles and policies for ensuring access to and availability of health services for all ages, populations, and communities affected by a disaster or public health emergency</p> <p>7.2. Demonstrate proficiency in the application of laws and regulations to protect the health and safety of all ages, populations, and communities affected by a disaster or public health emergency</p>

This construct has stood the test of time and provides a curriculum base that has been widely accepted by many organizations to include the National Center for Disaster Medicine and Public Health (NCDMPH), the federal interagency entity housed at the Uniformed Services University, created by the 2007 Homeland Security Presidential Directive 21 (HSPD-21), a landmark federal document defining national preparedness and response structure and charging the National Center to be “an academic center of excellence in disaster medicine and public health...” These competencies were also incorporated into the suite of courses offered by NDLSF, a recognition of the necessary integration of health responders and planners representing the varied disciplines of Medicine and Public Health into a preferred national framework, setting the stage for the emergence of an integrated, unified disaster preparedness and response system [9].

Unfortunately, this would not be the case. The interdisciplinary tensions that have long defined our healthcare system came to the forefront and questions of ownership and territorialism precluded any real accomplishment. This, of course, should have been predicted on two accounts: the existence of so many disciplines and specialties across the health and public health systems (there are over 120 medical specialties/subspecialties in medicine alone) and the recognized role that each of these play to a varying degree in preparedness and response leading to a sense of “ownership” as to the education and training needed to be better prepared. Unfortunately, this does not take into account the need for any given profession to go beyond their discipline specific role whereas in a given event additional skills are usually needed. This was summed up for physicians as a specialist often needing to be a generalist and a generalist sometimes needing to be a specialist. Among all disciplines, there are common skills – suturing or vaccinating, for example – that are generally associated with specific disciplines that can be provided by nontraditional practitioners when the numbers needing such services require this adjustment. Rigid professional firewalls of licensure and practice prevent such mutual support, as do long-entrenched cultures of professional independence. The potential adverse impact of these divisions during and after a massively destructive event should be obvious.

One example of this, and there are many, is the work leading to the recognition of a dental emergency responder by the State of Illinois [10], wherein the dentist or dental hygienist with appropriate training such as provided by the NDLS courses can perform functions (e.g., vaccination) not normally associated with dental care. This is groundbreaking work but needs to be built upon so that alternative providers can be effective responders beyond the scope of licensure, but within the parameters of their abilities. This concept along with the controversial but generally accepted “altered or crisis standards of care” [11] has played out in multiple international disasters most especially when the normal physical environment of practice is itself a victim of the disaster. Regardless of where you come down philosophically on this issue, the realities may well be that these responders may have to act outside the bounds of their specific discipline and some entity or organization must accept the responsibility of better preparing and certifying these health responders to insure the enhancement of their abilities.

An analogous situation to where we are today in disaster medicine and public health preparedness can be seen in the evolution and definition of emergency medicine as a board-certified specialty in the latter half of the twentieth century. In 1968 emergency physicians organized to form the American College of Emergency Medicine, which led the drive to established emergency medicine as a specialty of medicine [12]. The early emergency room physicians came from across the field of medicine and defined the knowledge base required for proficiency as well as the academic and research structure to insure the success of the newly defined discipline. Disaster medicine and public health preparedness is today in this same position, drawing from health responders from all fields of healthcare. It is time for them to come together to further define the unique knowledge base and supporting academic, research, and publication frameworks previously described [9].

To date addressing preparedness and response or some aspects of it, many organizations, associations, and societies have been created *de novo*, and an even greater number have been established as committees, subcommittees, or special interest groups within existing professional organizations. Unfortunately, there has been entrenched resistance to the recognition of a new discipline based on a number of considerations, most of which are quite legitimate. The foremost is the view that a new discipline and supporting organization will be a threat to existing membership and will dilute professional identity of professional members. It is imperative that we find a way to convince existing groups that disaster medicine and public health is not competitive but, in fact, complimentary to and recognizes the primary professional organization representing a given discipline and its members. Under this construct, it can be envisioned that regardless of one's primary profession, all in healthcare – providers, planners, and ancillary personnel – have a secondary discipline, Disaster Medicine and Public Health. This is akin to the role played by the American College of Healthcare Executives (ACHE). While representative of “administrators” (for lack of a better term), ACHE membership and professional certification are also held by physicians, dentists, mid-level providers, nurses, and others from the entirety of the healthcare spectrum. ACHE fellowship is a supportive credential that reinforces the individual's primary profession. There is a similar role for a disaster medicine and public health professional society.

The role of such a professional society in supporting global health security is to facilitate consensus on common core competencies, to identify and support individuals with an active interest in medicine and public health preparedness, to provide them with the basic knowledge and skills to be more effective responders, and to provide them with recognizable certification. One attempt at achieving this was described at the 5th International Conference on Healthcare System Preparedness and Response to Emergencies and Disasters: A Novel Approach to Pre-credentialing of Individuals to Serve on Emergency Medical Teams – Arthur Cooper, USA (IPRED) in 2018 – with a presentation that outlined a global health responder certificate that would be awarded after satisfying a set of criteria across three domains: individual education and training (ET), practice (PR), and faculty research and education (RE). By allocating relative values to a total of 13 criteria across these 3 domains, the workgroup established a consensus evaluative tool (Table 11.2) that can be used to assess the qualifications of applicants for professional certification [13].

The composite point value must exceed a designated threshold for the applicant to be considered as having attained relevant and applicable experience. The evaluative tools also serve as a road map for applicants to areas for improvement or expansion of knowledge, skills, and abilities. The criteria set are presented in Table 11.1, and although not specifically identified, the educational and training requirements must address the definable dangers and unique risks to the responders themselves inherent in any event. When a responder becomes a victim, the responder to victim ratio is negatively impacted on both sides of the equation.

This work was grounded in the belief that, regardless of the catastrophic event, an effective health and public health response system, although dependent on many factors, is most reliant on the personnel supporting the response operationally,

**Table 11.2** Elements leading to an interdisciplinary certificate in disaster and global health

Domain	Criteria	Weight
1	PR Deployment or support to a DGH event or exercise, including after action analysis Active team participation or training related to DGH (e.g., NDMS, NGO, ICRC, MRC, USAR Team, WHO, faith-based relief organization, etc.)	
2	PR Military or civil support experience or skill relevant to a DGH event (e.g., logistics, communications, field sanitation, mass care) Competency-based, discipline-specific skill related to DGH (e.g., practice, policy, research, teaching)	
3	ET Graduate of accredited undergraduate or graduate degree, certificate, practicum, or internship in DGH-related area	
4	ET Course completion in DGH-related areas (accredited, continuing education certified, or government sponsored)	
5	RE Author or reviewer of a DGH-related article in a peer reviewed publication (each instance)	
6	RE Author of DGH-related article in gray literature (not peer reviewed, e.g., a commercial publication) addressing strategy, policy, or practice	
7	RE Author of or significant contributor to DGH-related educational product	
8	RE Instructor for DGH-related course or DGH researcher at an accredited college or university or within a research institute	
9	RE Instructor, speaker, or panelist at a DGH-related conference	
10	ET Attend DGH-related annual educational meeting Complete self-study through journal learning, online continuing education courses, or other recognized means	
11	RE Leadership position in a recognized DGH peer membership organization (e.g., AADM, SDMPH, NDLSF, MESH)	
12	PR Committee participation in DGH-related organization	
13	PR Life experiences (e.g., demonstrated cultural sensitivity or awareness, specific related experience, language proficiency)	
<b>Total</b>		<b>100</b>

administratively, and organizationally. The support structure is, for the most part, staffed by a cadre of career professionals who can be called upon to support response activities. The actual medical responders, whether part of an organized effort or freelance, will be volunteers, and the ability to identify ready, willing, and able volunteers will be critical. Preparing such would be the main contribution of a professional society that helps facilitate health response and relief efforts [12]. A corollary to this contribution is for national societies to foster a culture of preparedness among all potential healthcare responders. In almost all events, the true first medical responders are local healthcare personnel who are such by dint of their presence at the scene, and all should have the mindset of being part of the overall response. This requires a basic understanding of the response system and how they can best contribute to it. The benefits of a better prepared spontaneous response pool have been well documented [13]; and some of the more common deficiencies attendant to ill-prepared responders have also been enumerated in the seven sins of humanitarian medicine presented in Table 11.3 [14].

**Table 11.3** The seven sins of humanitarian medicine

Sin #1	Leaving a mess behind
Sin #2	Failing to match technology to local need and abilities
Sin #3	Failing of NGOs to cooperate and help each other, and to cooperate and accept help from military organizations
Sin #4	Failing to have a follow-up plan
Sin #5	Allowing politics, training, or other distracting goals to trump service while representing the mission as “service”
Sin #6	Going where we are not wanted, or needed and/or being poor guests
Sin #7	Doing the right thing for the wrong reason

For those volunteering to respond from an unaffected locale, however, there is a need to have a knowledge and skill level beyond a basic understanding of the local, national, and global response system. However, here we come to an intellectual and pedantic conundrum in trying to define and establish what the appropriate skill level should be. There is little science in this area to guide us, so we must turn to expert opinions, and, again unfortunately, as we ask thought leaders in our field what the standards should be, we receive responses across the spectrum of educational attainment and experience. To better understand these impediments, a brief overview of the literature addressing disaster training directly and indirectly with accompanying recommendations will be provided followed by an attempt to define the basic standards for recognition as a ready, willing, and able health responder.

## **Defining the Requirements for Recognition as a Ready, Willing, and Able Health Responder**

If you can look into the seeds of time, and say which grain will grow and which will not,  
Speak then to me – Macbeth: Act 1, Scene 3

To begin with, let’s clearly establish what we are trying to address and define. First and foremost, we are focusing on individual healthcare personnel from across the spectrum of disciplines and specialties who have self-identified as wanting to be recognized as a health responder by the preparedness and response community, as well as those allied and ancillary professions that contribute to effective disaster health response. We will also depend on this cadre of certified responders to promote a culture of preparedness among all those in healthcare as they can be more effectively involved as the event unfolds around them. Additionally, it must be stressed that individual certification is not intended to be competitive to ongoing efforts to certify local, national, and/or global medical response teams such as those sponsored by WHO [15].

Rather, who we are trying to identify are those individuals who would make qualified candidates for inclusion on such teams participate in other organized responses, including those with nongovernmental organizations (NGOs) and define

how they might better prepare for such utilization. This approach also addresses those who have the knowledge, interest, and ability to be a responder but who cannot commit a priori to joining a formal response entity for any number of reasons. The final thought here as to training standards is the consideration of what we are training for: what we must be ready for. We cannot prepare for every contingency because we cannot predict future events. That does not relieve us, however, of the responsibility to prepare as best as we can for the probable and thus be more ready for the improbable. Thankfully for the healthcare system response, we prepare to deliver care to the injured and sick, and this represents a much more finite set of probabilities to consider. It has been suggested that regardless of the causative agent, disaster victims present with a commonality of needs [16] and a higher-skilled health and medical community can better meet those needs. More importantly critical needs can be predetermined across diagnostic categories and health responders better prepared to deal with them in terms of their education, training, and experience. A further benefit to this approach is that it would allow the identification of critical diagnostic categories (e.g., multiple trauma, infection, etc.) that are common across most events, and this allows for improved all-hazards preparedness and response [17].

In one of the earliest papers published on disaster medicine education and training [18], based on experiences from military medicine, made the following observations (paraphrased):

1. We prepare for war based on past experience but new wars prove quite different.
2. Newly inducted physicians often could not adapt to the concept of teamwork nor standard triage procedures as they were thoroughly indoctrinated in the ethics of individual patient care.
3. The responder must be aware of the essential differences in human needs in disaster situations.
4. We cannot expect a student to learn disaster principles through education alone as experience is also required, and “there can be no doubt that it is possible to provide...experience through which the healthcare worker might learn disaster medicine.”

Another publication by Claude de Ville de Goyet noted that it is better to wait following a given event for an early assessment of needs to inform the response [18]. Palma et al. [19] proposed a Certificate in Military Medicine addressing many of the requirements one would expect for effective disaster health responders. They identified seven categories of requirements, each at two levels, operational and expert. The seven categories were Leadership, Preventive Medicine, Field Experience, Administrative, Casualty and Incident Management, Scholarly Activities, and Service/Specialty-Specific Requirements, a grouping quite similar to those identified at IPRED for being awarded the global health responder certificate [20].

At the World Association for Disaster and Emergency Medicine (WADEM) meeting in 2004, a special report [21] was issued on Guidelines and Standards for

Education and Training for significant events. The report is quite detailed and should be read by those interested in this area. The significant statements for our purposes were two:

1. Health consequences of disasters have been reduced by improved response but also because of increased health activity in all phases of the Disaster Cycle, therein described as Prevention, Mitigation, Preparedness, Response, Rehabilitation/Recovery, and Reconstitution/Reconstruction.
2. Three educational levels were defined:
  - (a) Level 1 – competency-based education programs to be routinely included in the curriculum of all health professions’ schools.
  - (b) Level 2 – for health practitioners wishing to be actively involved in preparedness and response.
  - (c) Level 3 – an academic attainment for those seeking recognition as a “Disaster Health Specialist.” The focus of a certificate program as discussed herein would obviously coincide with Level 2 but could serve as a precursor for development of Level 3. In further addressing the needs of actual health responders, Markenson et al. [22] argue for a common competency-based curriculum for all health professions schools (to include public health) in order to address the lack of coordination and integration, which has been the hallmark of many response efforts following significant events.

Many assumptions and myths of disaster response are addressed and challenged through research and observation described in a seminal report by Auf der Heide [13] and an accompanying editorial by [23]. What is unfortunate is that many of these assumptions and myths continue to not only hold sway but to influence disaster planning and disaster education and training. These references should be directly addressed by those involved in these activities, but some of the more cogent “do’s and don’ts” were as follows:

1. Any competent provider should be able to organize, staff, and resource for a multi-casualty event.
2. Courses such as ACLS and ATLS are of limited value because the resulting knowledge and skill decay rapidly *and* disasters by their nature and variability cannot be reduced to one or more algorithms.
3. The government cannot and does not take action promptly and singularly handle the response; we must be prepared to the extent possible at the local level.
4. We need to incorporate response plans and protocols into our everyday routines through frequent drills.
5. We need to incorporate disaster training into the curricula of health profession schools.

Pfenninger et al. [24] described the development and implementation of a disaster medical curriculum for medical students in Germany. The fixed course consisted of fourteen 2-hour modules and was incorporated into the medical school curriculum. It should be noted that the course benefitted from multi-disciplinary



input and review and, although designed for medical students, can be used as a model for other health professions schools due to its inherent comprehensiveness and flexibility. The curriculum has been implemented in nine German medical schools and is undergoing a 5-year evaluation. There are some vital lessons for disaster healthcare training and education in the United States. Principally, a multidisciplinary effort to develop a competency-based common core curriculum for all of our health professions' schools is an essential ingredient to becoming a better prepared nation.

A paper evaluating the National Bioterrorism and Curriculum Development Program (BTCDDP), a post 9/11 federal program that awarded over \$100 million dollars to develop curricula and provide education and training for practicing health professionals, was published in Fowkes et al. [25]. Succinctly, it was found that some 1 million health practitioners attended a course and another 50,000 participated in drills. Key themes were then identified by the multidisciplinary grantees as essential elements of preparedness training programs:

1. Personal and family preparedness
2. An all-hazards approach
3. Multidisciplinary
4. Partnerships across sectors
5. Standardized curricula based on common core competencies
6. Culturally competent
7. Customized to local needs
8. Available via different learning modalities
9. Incentivized through CME, certification, etc.
10. Monitored for effectiveness

The principal challenges were lack of universality, maintaining knowledge and skills, and turnover of practitioners over time. One observation reinforced over years of experience with many of these courses was that there was too great a focus on teaching what many already knew as opposed to fostering the integrative, social, and systemic skills not provided in the curricula of most professional schools. It should be noted that with the end of federal funding, the majority of these programs, with at least one notable exception in the NDLS effort, disappeared.

The authors' overarching recommendation to address these shortfalls was the establishment of a Natural All-Hazards Preparedness Board representing all practicing health professional disciplines. Among the activities of such a board would be the endorsement of competency-based standardized curricula for all health students. Such a board remains a recommendation, but in the absence of such a body, a professional society can serve as an interdisciplinary convening entity to foster consensus. Unfortunately, in spite of Presidential Directives and expenditure of millions of dollars, by 2012 [26, 27] assessments found that only a small percentage of US medical schools included disaster medicine in their core curriculum and even fewer incorporated competency-based training. Today, as those of us working in the field can attest, this situation has not improved and can be more or less generalized for all health professions schools. Before a thorough discussion of the interplay of the vari-

ous factors impacting the willingness to respond under various scenarios, see Valdez and Nichols [28] who found willingness to respond levels similar to those previously reported by Smith but education training levels to have increased from 25% to 50%.

There are numerous other articles in the disaster medicine literature on education and training that are not reviewed herein. Those presented do provide a broad brush stroke for our focus area and that is better defining the essential elements that must be included in education and training programs for health professionals and those who would be health responders. This leads to several other topics that must be examined in order to define more comprehensive programs and a discipline of Disaster Medicine and Public Health. A discipline is primarily dependent on its underlying knowledge base, and a valid knowledge base is a composite of knowledge incorporated from other disciplines expanded through scientific inquiry and exploration of the many interactive variables influencing individual or population outcomes. An editorial appearing in *Prehospital Disaster Medicine* [29] provided a similar argument and conclusions.

A knowledge base is built on what is known and accepted and expanded through observation and research. The hallmark of evidence-based medicine is the randomized clinical trial, a methodology that, for obvious reasons, is largely precluded for the study of disasters and is not suitable in general as a valid public health methodology because public health research must “address the needs of large populations across clinical behavior, and structural platforms and necessarily entails crucial operation issues, variability and complexity.” [30] Consequently, other levels of evidence (which can be succinctly listed as analytical and descriptive epidemiology, survey and social sciences methodologies, assessments, reports, and expert opinions, in descending order of strength) must be relied upon and, where possible, integrated through translational research into actionable data and information to better inform both operational programs and science-informed public policy. A more thorough discussion of the scope and intent of this is the state of disaster science today, and its dependence on a multidisciplinary approach is beyond our scope, but the interested reader wishing to explore these issues is referred to the references [31–33].

As a knowledge base is built, peer-reviewed publication must follow, and, fortunately, there are several excellent professional journals in the areas of preparedness and response that address the overall topic or are more focused, limiting their attention to biosecurity, environment, climate, etc. The journals *Disaster Medicine and Public Health Preparedness* and *Prehospital Disaster Medicine* both publish a broad range of peer-reviewed scholarly articles reflecting multidisciplinary science and global health system integration from across the globe. In addition to those publications in disaster medicine journals, many articles on preparedness and response continue to be published in the professional journals of individual disciplines and specialties such as the American Journal of Public Health, the Journal of Emergency Medicine, the Journal of the American Medical Association, Psychiatry, Pediatrics, and many more. Complimenting these peer-reviewed sources is a vast collection of agency reports and other non-peer-reviewed material that can be quite useful to the researcher and policymaker [34]. Overall, a robust pipeline of quality

work is being made available to the most important link in the health preparedness chain, the health responder and those who may well assume that role.

Another critical topic which needs to be addressed in preparing to respond is the application of ethical principles in disasters and public health emergencies, a subject area that would require a separate text to fully address. For our purposes, it would be more prudent and constructive to address the most salient and problematic constructs and dilemmas rather than attempt a thorough review of the literature, the hallmark of which is educated opinion based on philosophical consensus. This statement is not to diminish the critical importance of ethical constructs but to critically question the absolute foundations on which they are built. In reflecting on medical research, Michael DeBakey noted “it is possible to construct a formal medical code that will embrace every circumstance, since each presents a unique situation. Because of their complexity, variability, and irreducibility to stereotypes, living systems, unlike inanimate nature, are not subject to formulas” [35].

This admonition is even more apropos for us given the infinite complexity of catastrophic events.

However, there are three areas that responders must better understand and come to grip with:

1. **Medical vs. Public Health Ethic:** all healthcare providers are thoroughly trained and grounded in doing all that can be done for the individual patient under one’s care – it is a sacred contract. In the multiple casualty situations, however, we are expected to maximize the overall public benefit, a transition from a humanitarian to a utilitarian standard. This shift is easy enough to accept intellectually, but to eschew years of training, experience, and personal belief is no easy task, especially when immersed in a chaotic situation. (It is well and good to address this dichotomy from an academic pulpit, but until one has actually experienced one of these situations, dogmatic guidelines are suspect. Max Finland, a giant in medical research and infectious disease, suggested that the most vociferous critics or self-appointed custodians of medical ethics are often poorly qualified to judge the ethical or moral propriety of the experiments they condemn (DeBakey)). In preparing a responder to better adapt to this reversal in ethic, some form of repetitive training is required. The closest thing to a live fire exercise that is readily available in the non-military sector is realistic mass casualty triage training which introduces the second topic, disaster medicine can’t be taught [36].
2. **Triage** – almost every course and training program dealing with disaster response includes instruction in triage – the rapid separation of casualties into categories to maximize overall health benefit or outcome. Unfortunately, there are multiple systems, START, Jump START, SAVE, Sais, SALT, etc., and none can be truly clinically validated [37]. However, they are extremely important training tools, and it would benefit the field if we could adopt a single standard. In a disaster scenario, the important characteristics of a useful triage tool are simplicity for rapid recall and recognition that triage is a continuum from incident through recovery, not a point-in-time event [38]. It is also helpful if the triaging personnel prioritizing care and those providing expedited mass treatment are working within the same framework. Differing protocols can lead to oversight or missed

communication, which can needlessly cost lives following a disaster. Based on these criteria, the NDLS programs and many other professional entities have adopted SALT (Sort, Assess, Lifesaving Intervention, and Stop the Bleed and Transport) as the preferred method [39]. Beyond mass casualty triage, there is a second level of triage that is gaining recognition, and that is population or public health triage. This has been well explored for response to a large-scale bio-event [40], but only more superficially for other catastrophic events such as a thermo-nuclear event that threatens the whole of society. The common thread, however, regardless of the type of event, is the focus on the desired outcome – no longer maximizing the health outcome among casualties but optimizing overall survivability of systems and institutions. Herein, the accepted ethical constructs of equality and social justice are displaced by utilitarian criteria which will favor some over others.

3. Standards of Care – following September 2001 (9/11) and with the increased attention paid to disaster medicine, one of the ongoing conundrums that has plagued the discipline is the question of the need to have crisis or altered standards of care. The need of such is well articulated in an IOM publication [40]. Others question the validity of this need [41–43] based on the very definition of Medical Standard of Care (MSC), a definition that is poorly understood by many addressing it. First and foremost, there is no universally accepted medical definition of MSC; it is a legal definition and in the United States can vary from state to state. Secondly, the “standard” is not fixed; it changes with medical advances and experience, and thirdly, given the extreme variability from one event to another, we would have a need to address an almost infinite number of “altered standards” most of which would not be reproducible. The Legal Dictionary (<http://legaldictionary.com>) defines MSC as the “caution that a reasonable person in SIMILAR CIRCUMSTANCES would exercise.” This definition should provide the health responder sufficient legal protection in the United States and in most areas on the global stage [44]. Again, turning to DeBaakey, “I think human beings have an innate desire to help each other. And whether you’re in medicine or anything else, if you see someone that you can help...you get a gratification from doing it. In fact, I think that is perhaps the most important, you might say, fabric that holds the society together.” The real issue becomes not your standard of care but your decision-making and your ability to shift from an individual to a population ethic when confronted by difficult triage situations and the rationing of scarce resources, decisions that must be confronted and made, as no decision is the most likely the least acceptable one. One caveat to this with special applicability to physicians is that the care/service rendered must be gratuitous and, in most states, provided outside of a hospital. The law on this latter provision is rapidly evolving as a result of the legal repercussions suffered by care providers at Memorial Hospital in New Orleans following Hurricane Katrina.

Further, in disaster preparedness and response, many of the decisions that must be made are examples of what have been termed wicked problems – problems that are difficult or impossible to solve because of incomplete, contradictory, and changing requirements, be enumerated a priori, and the solution to which cannot be judged right or wrong, only better or worse, and only in retrospect [45]. Too often

there are multiple stakeholders with different interests and different worldviews, and a truly collaborative strategy is required to achieve some consensus. Given the multidisciplinary, multi-sectoral interests in preparedness and response, individuals must recognize their obligation to strive for an optimal public benefit solution as opposed to maximizing individual or discipline specific agenda.

The inherent difficulty in making this shift is vividly demonstrated in a personal anecdote all should read, in which a responding physician must accept less than desirable outcomes for individual patients so that a greater number can be treated [46].

## Conclusion

All the world's a stage and all the men and women merely players; and one man in his time plays many parts. – Shakespeare

In lieu of a summation of the materials presented above, the real and potential contributions of an interdisciplinary society for disaster preparedness and response to achieving global health security will be enumerated. The ideal organization would attract individuals supporting health and public health. Members would have a genuine interest in supporting the work of the Society and in being recognized as ready, willing, and able responders. In addition, the Society would provide a structure to facilitate and bring together entities either via coalition or some other collective body which would define and support Society goals and objectives.

These goals and objectives in supporting global health security are:

1. Further define and develop a discipline of disaster medicine and public health based upon a unique and evolving knowledge base, scientific inquiry, publication, and translational research.
2. Initiate, develop, and field a certification program recognizing society members who have prepared themselves as ready, willing, and able responders.
3. Establish a broad, multidisciplinary, public-private entity to develop a common model, competency-based preparedness and response core curriculum for adoption in all health professions' schools.
4. Support and provide competency-based continuing education for current practitioners to include "just-in-time" offerings as needed.
5. Develop a code of ethics for those involved in preparedness and response.
6. Take the lead in recognizing the importance of citizens' preparedness and the significant positive contributions made by bystanders as the immediate responders to casualty events.
7. Establish a multidisciplinary representative body to discuss policy issues, and achieve consensus impacting preparedness and response.
8. Collaborate with the preparedness community to support the development of a Disaster Medical System and to develop a common lexicon for disaster medicine and public health standards.

As healthcare professionals, we all have an obligation to ourselves, our families, and our communities to be better prepared and to respond to the needs of others.

Disaster Medicine and Public Health Preparedness should be our universal secondary discipline, one that is complimentary to, not competitive with our primary profession. Only through true integration of the medical and public health communities will we be able to address the disconnects that have plagued us in the past, disconnects that are the direct result of the inherent nature of planning and response efforts and the primary obstacle to achieving a culture of preparedness without which we will never fully attain global health security.

## References

1. The Borgen Project. Available at: <https://borgenproject.org/>. Last accessed 03/23/2018.
2. Parks M. World Faces Largest Humanitarian Crisis Since 1945, U.N. Official Says, <https://www.npr.org/sections/thetwo-way/2017/03/11/519832515/world-faces-largest-humanitarian-crisis-since-1945-u-n-official-says>. Last accessed 28 June 2018.
3. 2018 will be the ‘worst for humanitarian crises’ since the Second World War. <https://www.telegraph.co.uk/news/2017/12/31/2018-will-worst-humanitarian-crisis-since-second-world-war/>. Last accessed 28 June 2018.
4. Aldis W. Health security as a public health concept: a critical analysis. *Health Policy Plan.* 2008;23(6):369–75. <https://doi.org/10.1093/heapol/czn030>. Epub 2008 Aug 8.
5. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>. Last accessed 3/25/2018.
6. The world health report 2007 – A safer future: global public health security in the 21st century. <http://www.who.int/whr/2007/en/>. Last accessed 25 Mar 2018.
7. Alexander GC, Wynia MK. Ready and willing? Physician readiness and willingness to treat potential victims of bioterror. *Health Aff.* 2003;22(5):189–97.
8. Subbarao I, Lyznicki J, Hsu E, Gebbie K, Markenson D, Barzansky B, et al. A consensus-based educational framework and competency set for the discipline of disaster medicine and public health preparedness. *Disaster Med Public Health Prep.* 2008;2(1):57–68. <https://doi.org/10.1097/DMP.0b013e31816564af>.
9. Walsh L, Subbarao I, Gebbie K, Schor K, Lyznicki J, Strauss-Riggs K, et al. Core competencies for disaster medicine and public health. *Disaster Med Public Health Prep.* 2012;6(1):44–52. <https://doi.org/10.1001/dmp.2012.4>.
10. Colvard MD, et al. The evolving role of dental responders on interprofessional emergency response teams. *Dent Clin.* 60(4):907–20.
11. Leider JP, DeBruin D, Reynolds N, Koch A, Seaberg J. Ethical guidance for disaster response, specifically around crisis standards of care: a systematic review. *Am J Public Health.* 2017;107:e1–e9. <https://doi.org/10.2105/AJPH.2017.303882>. der Heide EA. The importance of evidence-based disaster planning. *Ann Emerg Med.* 47:34–49.
12. James J, Benjamin G, Burkle F, Gebbie K, Kelen G, Subbarao I. Disaster medicine and public health preparedness: a discipline for all health professionals. *Disaster Med Public Health Prep.* 2010;4(2):102–7. <https://doi.org/10.1001/dmp.v4n2.hed10005>.
13. der Heide EA. The importance of evidence-based disaster planning. *Ann Emerg Med.* 2006;47:34–49.
14. Schein M. Seven sins of humanitarian medicine. *World J Surg.* 2010;34:471. <https://doi.org/10.1007/s00268-009-0385-8>.
15. Emergency Medical Teams and World Health. Available at: Organization. [http://www.who.int/hac/techguidance/preparedness/foreign\\_medical\\_teams/en/](http://www.who.int/hac/techguidance/preparedness/foreign_medical_teams/en/). Last accessed 30 Mar 2018.
16. “The All Needs Approach to Emergency Response” Homeland Security Affairs, Article 1, February 2012, <http://www.hsaj.org/?article=8.1.1>. Donald A. Donahue, Jr., DHEd, MBA,

- FACHE; Stephen O. Cunnion, MD, PhD, MPH; Carey D. Balaban, PhD; and Ken Sochats, MS.
17. James James. Unpublished research.
  18. Brown, JAMA. 26 Sept 66 Vol 197# 1316. Claude de Ville de Goyet Prehospital and Disaster Medicine, Volume 14 #4 October–December 1999.
  19. Palma J, et al. *Military Medicine*. 2003;68(Suppl 1).
  20. Palma J, et al. Certification in military medicine. *Mil Med*. 2003;168(Suppl 1):59–65.
  21. Health disaster management guidelines for evaluation and research in the utstein style ISBN: 1049-023X Editors: Knut Ole Sundnes, MD; Marvin L. Birnbaum, MD, PhD.; Elaine Daily Birnbaum, RN, BS, FCCM.
  22. Markenson D, DiMaggio C, Redlener I. Preparing health professions students for terrorism, disaster, and public health emergencies: core competencies. *Acad Med*. 2005;80(6): 517–52620.
  23. Burstein JL. The myths of disaster education. *Ann Emerg Med*. 2006;47:50–2.
  24. Pfenninger EG, Domres BD, Stahl W, Bauer A, Houser CM, Himmelseher S. Medical student disaster medicine education: the development of an educational resource. *Int J Emerg Med*. 2010;3(1):9–20. <https://doi.org/10.1007/s12245-009-0140-9>.
  25. Fowkes V, Ablah E, Oberle M, Sandrock C, Fleming P. Emergency preparedness education and training for health professionals: a blueprint for future action. *Biosecur Bioterror*. 2010;8(1). <https://doi.org/10.1089/bsp.2009.0044>.
  26. Smith J, Levy MJ, Hsu EB, Levy JL. Disaster curricula in medical education: pilot survey. *Prehosp Disaster Med*. 2012;27(5):1–3. <https://doi.org/10.1017/S1049023X12001215>.
  27. Brown CH. *J Manag Policy Prac*. 2014;14(4). Stratton SJ. Is there a scientific basis for disaster health and medicine?. *Prehosp Disaster Med*. 2014;29(3): 221–2. <https://doi.org/10.1017/S1049023X14000582>.
  28. Valdez CD, Nichols TW. Motivating healthcare workers to work during a crisis: a literature review. *J Manag Policy Prac*. West Palm Beach. 2013;14(4):43–51.
  29. Shelton JD. Evidence-based public health: not only whether it works, but how it can be made to work practicably at scale. *Glob Health Sci Pract*. 2014;2(3):253–8. <https://doi.org/10.9745/GHSP-D-14-00066>.
  30. About IRIDeS. Available at: <http://irides.tohoku.ac.jp/eng/outline/index.html>. Last accessed 30 Mar 2018.
  31. MacLachlan M. Rethinking global health research: towards integrative expertise. *Glob Health*. 2009;5:6. <https://doi.org/10.1186/1744-8603-5-6>.
  32. A Global Outlook on Disaster Science. Available at: <https://www.elsevier.com/research-intelligence/research-initiatives/disasterscience2017>. Last accessed 30 Mar 2018.
  33. Disaster Lit: Database for Disaster Medicine and Public Health. Available at: <https://disasterlit.nlm.nih.gov/>. Last accessed 30 Mar 2018.
  34. De Bakey ME. Medical research and the golden rule. *JAMA*. 1968;203(8):574–6.
  35. Veenema TG. Disaster nursing and emergency preparedness for chemical, biological, and radiological terrorism and other hazards. p. 212.
  36. Bostick N, Subbarao I, Burkle F, Hsu E, Armstrong J, James J. Disaster triage systems for large-scale catastrophic events. *Disaster Med Public Health Prep*. 2008;2(S1):S35–9. <https://doi.org/10.1097/DMP.0b013e3181825a2b>.
  37. Lerner E, Cone D, Weinstein E, Schwartz R, Coule P, Cronin M, et al. Mass casualty triage: an evaluation of the science and refinement of a national guideline. *Disaster Med Public Health Prep*. 2011;5(2):129–37. <https://doi.org/10.1001/dmp.2011.39>.
  38. Burkle FM. Population-based triage Management in Response to surge-capacity requirements during a large-scale bioevent disaster. *Acad Emerg Med*. 2006;13:1118–29. <https://doi.org/10.1197/j.aem.2006.06.040>.
  39. Committee on Crisis Standards of Care: A Toolkit for Indicators and Triggers, Board on Health Sciences Policy, Institute of Medicine, Hanfling D, Hick JL, Stroud C. 1, Introduction. In: *Crisis standards of care: a toolkit for indicators and triggers*. Washington (DC): National Academies Press (US); 2013. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK202387/>.

40. Schultz CH, et al. Development of National Standardized all-Hazard Disaster Core Competencies for acute care physicians, nurses, and EMS professionals. *Ann Emerg Med.* 2012;59(3):196–208.e1.
41. Koenig KL, et al. Medical relief after earthquakes: don't forget the local response! *Ann Emerg Med.* 2012;59(5):448.
42. Paterick TJ1, Paterick BB, Paterick TE. Implications of good Samaritan laws for physicians. *J Med Pract Manage.* 2008;23(6):372–5.
43. Churchman CW. Wicked problems. *Manag Sci.* 1967;14(4):B141–2. <https://doi.org/10.1287/mnsc.14.4.B141>.
44. Kirsch TD, Moon MR. The line. *JAMA.* 2010;303(10):921–2. <https://doi.org/10.1001/jama.2010.239>.



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# Chapter 12

## Global Health Organizations: What They Are and How They Work



Casimir Lorenc

*Foreign Assistance is not an end in itself. The purpose of aid must be to create the conditions where it is no longer needed.* – President Barack Obama

### General Overview

There are many different types of organizations and structures that are actively involved in global health efforts, ranging from direct government aid agencies to large transnational charities to small local health networks. Working with some kind of organization is practically unavoidable for most people engaged in global health, but in fact, the access to resources provided by these organizations is a tremendous benefit that would otherwise be unattainable for most individual healthcare workers. The level of engagement in these organizations is highly variable and can include direct aid transfers, disaster response, local grants, volunteerism, government advocacy, and legal support. Understanding the differences of how these disparate organizations work is important because it can define the type and scope of the work that they do but also because it often determines what level of engagement is required from individuals who are interested in working with them.

### Organizational Categories

Broadly speaking, all global health organizations fall into one of three major categories: governmental organization, nonprofit organization (NPO), and for-profit organization (FPO). Organizations within these categories will differ based on funding

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sources, organizational structure, and short- and long-term goals. A general understanding of how each of these categories works is helpful to appreciate how different organizations function in the sphere of global health.

*Government organizations* typically exist as agencies, programs, or departments that are controlled through the executive branch of the government and serve to protect and advance the interests of the citizens of their country. Additionally, they can also exist as organizations and programs that are formed by agreement between two or more different countries to achieve a mutually beneficial goal. By their nature, government organizations are subject to political change that can result in the missions of the various agencies adjusting as new administrations define new strategic goals. In the United States, most global health initiatives fall under the auspices of the Department of State, and the same generally holds true for analogous branches of government in other countries. Because of this, most governments use global health as part of their foreign relations tool kit to expand the government's interests and influence in other countries while at the same time providing humanitarian services to the world's most disadvantaged.

Since governmental agencies are funded almost exclusively through tax dollars, the government must in turn justify their expenditures to the taxpayer. Agencies and programs that are seen to have high levels of fraud, abuse, or waste are likely to see their funding cut or to be eliminated entirely, while those that are well run may still suffer a similar fate if political forces turn against them. Despite these challenges, the advantages a governmental organization has come through its ability to utilize political access not available to others to help achieve its goals, the ability to potentially raise incredible sums of money in a short time for emergency situations, and the opportunity to influence broad national and international policy with wide-reaching effect.

*Nonprofit organizations (NPOs)* are privately run entities that are created to advance the interests of a specific group of people or cause and by and large operate similarly in every country that has them. By their nature, they are charitable organizations that spend their funding to provide a public benefit of some kind. The benefits that can be provided are remarkably diverse and include educational services, public health initiatives, religious activity, lobbying efforts, professional development, funding for the arts, scientific research, and many more. Though many NPOs operate independently, many also form partnerships with the government to provide services where the government is either unable or unwilling to do so themselves. The benefit of these kinds of partnerships arises from the idea that NPOs are often seen as an integral part of the community that they serve, and so are both more trusted and better able to deliver targeted services to those that need them.

NPOs receive funding from a large variety of sources, which includes grants, donations, foundations, and even the selling of merchandise. Despite the fact that they are called nonprofit, NPOs can indeed be a profitable enterprise. The difference between an NPO and a for-profit company is that for the NPO, the profit is not allowed to go back to any private investor or individual and instead must be reinvested back into the organization. The government, to reward these organizations driving all their funding toward public services, in turn grants tax-exempt status to the organization for all the money it earns, which ensures that the NPOs are able to

receive 100% of the donations they receive. NPOs who breach their fiduciary responsibility to their cause risk having their tax-exempt status revoked and may even be subject to dissolution by the government.

The ability of an NPO to complete its mission rests on its ability to maintain the trust of its donors, workers, and beneficiaries that it is doing its best to spend money wisely to achieve maximal outcomes. An NPO that loses the trust of its supporters can quickly collapse, even if the funding is adequate, as the supporters migrate to other causes or competing organizations and beneficiaries refuse any services. As a result, many NPOs attempt to be as transparent as possible about their sources of funding, expenditures, and outcomes so that they may be seen as a trusted organization and worthy of further investment.

A *for-profit organization (FPO)* is an organization that serves to generate a profit that is then returned to an owner or shareholders, regardless of the activities of that organization. It may seem unusual to discuss the roles of FPOs in global health, as corporations large and small do not typically spring to mind when discussing this topic; however, FPOs play a very large part in global health efforts, and quite often this often goes unnoticed. FPOs direct their activities toward maximizing shareholder value, which is a measure not just of profitability but also of the company's reputation and stability. For an FPO involved in some way in global health, this often translates into charitable activities that may result both in development of new markets for products and also bolstering the image of the corporation. Ultimately, the degree to which an FPO engages in global health initiatives depends on how well they perceive the return on investment for their efforts, and they can be quick to change their strategies if their owners or shareholders fail to see any benefit coming from the initiatives.

In addition to the traditional global health strategies of many FPOs, there now exists an emerging market for a new batch of FPOs who provide ancillary services to other organizations or individuals. These FPOs focus exclusively on global health and sell services that include logistics and transport, volunteer tourism, administrative support, fundraising, consultation services, and more. As interest in global health grows and the opportunities and initiatives grow ever more complex, these companies have created a space where people and organizations can purchase quick and easy products to suit whatever their current needs are. The benefit of this is it allows for the buyer to quickly get the expertise they need for a problem rather than spend time and money to develop it on their own. These companies are themselves held accountable through market forces and competition, which serve to ensure that those companies which provide the best services rise to the top and are pressured to maintain that high level of quality to keep their position.

## **Governmental Organizations**

*Intergovernmental organizations (IGOs)* are formed when two or more countries form an organization or program to address a mutual interest. These organizations can be formed through simple mutual agreements but are usually created through

the use of permanent treaties. Common reasons to form an IGO are facilitation of international trade, law enforcement, resolution of political disputes, delivery of humanitarian aid, management of natural resources, environmental protection, and joint global health programs. The largest and most famous IGO is the United Nations, which within its mandate runs several programs that encompass the list above. Other examples include the World Health Organization, the European Union, the International Monetary Fund, the World Trade Organization, INTERPOL, NATO, and the Organization of Petroleum Exporting Countries.

IGOs are funded through yearly dues paid by their member states and are incapable of levying their own taxes and do not accept donations. The strength of any IGO lies in the willingness of the member states to support the activities and decisions of the IGO, even at their own expense. This effectively means that member states sacrifice a portion of their sovereignty to the IGO in exchange for whatever benefits the IGO provides. Because of this, IGOs strive to be impartial and fair in their work to ensure that they retain the respect of their member states, even when the member states disagree with them, because they believe the benefits of membership must outweigh the drawbacks.

*International development and aid agencies* are commonly found within the governments of the developed world. These organizations typically coordinate poverty and disaster relief as well as economic development initiatives on behalf of their government. Within the United States, USAID, under direction of the US Department of State, is the main agency responsible for this work. The work of these organizations includes both direct interventions of money, supplies, and expertise and partnering with and funding locally operating NGOs. These agencies serve to provide much-needed assistance to those who need it but do so with the goal of advancing their government's interests. Those interests often include the spread of democracy or some other political ideal, preventing global instability from economic and societal collapse, cooperation on security interests, and development of markets for importation of goods and exportation of resources.

## **Nonprofit Organizations**

*Nongovernmental organizations (NGOs)* exist in a wide variety of shapes and forms. Historically the purpose of an NGO is to provide a service to society that the government itself is either unable or unwilling to perform, and this is a definition that largely holds true today. NGOs may operate completely independent of any other authority, but many also work closely with the government and with the understanding that the NGO will largely remain independent of governmental influence, even if the NGO receives government funds or enters into a partnership with the government. The type of work that NGOs do is often focused on humanitarian aid, social and economic development, healthcare access, education, and justice, though almost any activity which provides benefit to society can be organized through an NGO. While NGOs don't strictly have to be nonprofit, in practice, they

almost always are because NPO status grants advantages such as tax exemption, which allows them to focus the bulk of their fundraising into their cause. Thus, as NPOs, NGOs receive most of their funding through donations, grants, and partnerships. Most NGOs maintain an open relationship with their supporters so they can evaluate the quality of the work the NGOs do. Since most NGOs must continuously raise funds, maintaining a high level of trust is critical to ensure that donors, foundations, and governments continue to support their cause. Most NGOs will issue a yearly report with metrics on their performance for the past year, goals for the coming year, and a full accounting of how they spent their funds.

NGOs can be active locally, regionally, nationally, and internationally, and the type of work they do often scales up with their size. Commonly, several NGOs will work together to achieve mutual goals, and it is not unusual for larger NGOs to directly fund the activities of smaller NGOs rather than undertake those activities themselves. Increasingly, even smaller NGOs are now turning to a direct funding model, choosing to direct funds toward local operations and individuals rather than provide those services themselves. This falls in line with current practice that NGOs should direct their activities whenever possible into projects that are locally sustainable as well as contribute to the growth or recovery of the community. The idea is that NGOs should not seek to maintain a permanent presence in the areas where they work and that in time the NGO should be able to completely hand over control of their projects to local organizations or end the program entirely if it is no longer needed. This holds true even for NGOs dedicated to disaster relief, with the idea that the post recovery period is a critical time to build resiliency in the community against future disasters and thusly reduce the need for future disaster response.

*Faith-based organizations (FBOs)* operate in a very similar manner to NGOs in terms of the type of work that they do; however, the key critical difference is that FBOs are tied in some way to a religious organization. The effect of this varies greatly between different FBOs. Some FBOs explicitly limit religious influence in their work, usually with the implication that the work itself is a manifestation of their religious beliefs, like charity or compassion. These FBOs also then avoid the risk that their initiatives will be rejected by a community that does not share its beliefs and also allows them to avoid criticism that they only help those who either share their belief system or only offer aid to people who convert over to it. Other FBOs in turn are very explicit about their use of faith in their activities and may use their work as an avenue to introduce their faith to the community they work with. These FBOs tend to be most active in areas where people already have similar belief systems, since they may face significant resistance in places that have different beliefs or faiths.

Another difference between NGOs and FBOs is that FBOs may receive funding from their parent religious organization, in addition to any other fundraising, grants, or donations that they receive. However, this also means that part of the criteria for the success of a FBO is how well they are able to adhere to the tenets of their faith. A FBO risks losing support if it is perceived to have strayed too far from their belief system, since the members of their faith will not want any association with an organization that violates their religious teachings.

*Community-based organizations (CBOs)* are also structured similarly to NGOs; however, their focus tends to both be limited to a particular physical community area and also have a very specific and narrow cause or focus. CBOs commonly arise to address a singular topic or issue in the community and are typically small organizations. Examples include local theater or arts groups, small charity clinics, after-school clubs, community-policing organizations, and small business associations. Many of them operate with small budgets and rely on volunteers to do much of the work. What money they do receive often comes in the form of grants or donations from larger NGOs. Indeed, many large NGOs prefer to partner with local CBOs because it is often difficult logistically to establish their own operations in some of these communities but also because it supports local resource development and promotes the growth of local industry. The strength of CBOs comes from the fact that they form directly in the community they work in and thus know the people and issues better than any other organization. This generates a high level of trust that allows them unparalleled access within the community. However, CBOs struggle with acquiring funding and resources and are often limited by the time commitment it takes to run them since their volunteers aren't paid and so must work their own jobs first. Partnerships with larger NGOs can help alleviate some of this difficulty, but there are risks that the mission of the NGO can overwhelm that of the CBO. For example, travelers in the developing world may marvel at the reach of some of the large international NGOs into far-flung rural communities, when in reality they are witnessing the activities of a local CBO who is using the NGO's branded materials in their work. Regardless, the partnerships, when done well, provide mutual benefits to both groups in the achievement of their goals.

## **For-Profit Organizations**

For-profit organizations have a significant global health presence in many industries, including pharmaceuticals, microfinance, and logistics. While companies in these industries perform functions that are well known, one unique area that has seen large growth recently is in *volunteer tourism*, sometimes also called *voluntourism*. Companies in this industry set up sites in the developing world where individuals can come and volunteer on community development projects. Increasingly included with these volunteer experiences is the opportunity to gain credit toward university coursework, especially in healthcare-related fields. These experiences tend to be short in duration, less than 4–6 weeks, and are typically well curated. They will often guarantee housing and cultural experiences and will have clear expectations of the kind of work the volunteers will participate in. Costs vary but usually cover most expenses to meet the basic needs of the volunteer in terms of food, clothing, and transportation. Volunteer tourism companies that promise an educational experience may operate as nonprofit, but the majority of companies in this industry operate as for-profit. The industry itself is not well regulated, and as a consequence, the true experiences of the volunteers, as well as the impact these

companies make on the communities they work with, are as a whole both highly variable and difficult to evaluate.

## Conclusion

This chapter is designed to be a guide to the types of organizations that work in the field of global health. Clearly there are many different kinds of organizational structures that can influence the scope of work that these organizations seek to do. Individuals interested in global health have many options to choose from and have a lot of flexibility in choosing an organization that aligns with their own personal philosophy and expectations of what kind of work they would like to be doing. Understanding how these organizations operate helps the individual make an informed choice, as well as bring clarity on how these organizations all interact with one another to achieve their goals.



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#### Special Interest/Professional Duties:

- Educating high school students about international service opportunities
- Educating medical students about the roles of international organization in low-resource countries

#### Global Experience:

- Worked at the American College of Surgeons in trauma education
- Peace Corps Volunteer in Ghana



# Chapter 13

## Cultural Sensitivity in Global Outreach



Sarwat Salim and Balamurali K. Ambati

*Global Health as Equity: “the just and equitable distribution of the risk of suffering and of tools to lessen or prevent it is too often the unaddressed problem in global health.”*

– Paul Farmer

### Introduction

A profound need exists for increased numbers of trained medical professionals and access to healthcare and resources to combat the global burden of diseases worldwide [1]. Physicians have a tremendous opportunity to contribute around the world through direct clinical and surgical care, skills transfer, education, research, and leadership development.

The authors of this chapter have had the privilege of serving in several countries, including Guatemala, El Salvador, Colombia, Iraq, Jordan, Israel, Pakistan, Syria, Mexico, Honduras, Ghana, Zambia, India, the Philippines, Malaysia, Indonesia, Panama, and the Navajo Nation. It has been an honor to work with talented medical personnel from across the world to help care for patients in many different contexts. In this chapter, we will discuss some facets of this international work, with a particular focus on cultural sensitivity, which have been extremely instrumental in making our work successful and rewarding. Although our international outreach has revolved around ophthalmology, these concepts are applicable to global outreach in any discipline of medicine.

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181

## Needs Assessment

Each country and community may have different needs. Sometimes, as visiting physicians, we have intrinsic biases by virtue of our training and mind-set to jump into a situation and “fix things.” At times, this approach can be counterproductive. First and foremost, it is important to assess the needs of the country you are visiting.

Acquiring knowledge and information about the existing infrastructure (e.g., local capabilities; available equipment and instruments; and skill level of physicians, nurses, and other staff members) is important. Some communities need direct service through clinical and surgical care. Other communities need skills transfer to local physicians and nurses. Yet others need equipment and instruments, strategic advice, long-term consultative services, financial support, or implementation of research programs.

It is important to do advance planning and establish communication with local contacts to effectively prepare and maximize efficiency of your visit. For example, if you are going to provide clinical and surgical care, inquire about the kind of care that is needed, what equipment is already available, what instruments you will need to bring, who will be selecting the patients you will see, and who will provide the follow-up care. Ensuring good continuity of care is critical for successful outcomes.

## Technology and Infrastructure

Technology and infrastructure might be similar or, in some cases, better or worse than what you are used to. Either way, you need to be adaptable. Doing surgery in an overseas context is like a jazz concert; it requires improvisation. Do not be condescending or put down host doctors, hospitals, equipment, instruments, or staff – they’re doing the best they can. Your job is to be a facilitator and help them improve in any way possible. You will be under more stress than usual (an unfamiliar operating room, staff who may not speak your language, and the usual fatigue of travel), and, in the heat of the moment, it is easy to make an unhelpful or hurtful remark. Do your absolute best to remain professional, courteous, and adopt as much of a go-with-the-flow attitude as you can without compromising patient care.

Be aware that differences in technology may make your cases considerably harder than you would face at your home hospital, and then determine accordingly whether to proceed. A lack of general anesthesia, inferior equipment, or a high potential for infection may mean that you need to approach a case differently or forego a surgery altogether. As surgeons, we are accustomed to making the call regarding treatment—do not be afraid to do so in these circumstances if you don’t believe you can have a successful outcome.

## Understanding the Culture

The definition of culture is very complex, and it is more than what a person looks like or what country a person belongs to. It is an interplay of many factors, including age, gender, work, religion, education, language, and social status. When planning an international outreach visit, it is important to get a good understanding of background and culture of the visiting country. Do this homework through books, media, or the Internet. Alternatively, seek advice of mentors who have had previous experiences with medical missions, or connect with sponsoring organizations.

Several key concepts must be kept foremost in mind during cross-cultural interactions. It is important to appreciate and respect diversity. We should not label culture as belonging to “others.” We all belong to many cultures; the key is to find similarities with others. Always remain open-minded to understand different perspectives and customs and avoid judgments and stereotypes. Several culturally determined characteristics that commonly arise in healthcare interactions include views of time, communication style, trust and belief in modern healthcare, decision-making, and gender roles. These are discussed below in more depth [2].

(a) *Timeliness*

In the United States, we place a great emphasis on timeliness. In many other parts of the world, time is very fluid and flexible. For example, in the Middle East and Central America, more emphasis is placed on people and relationships rather than set schedules.

(b) *Language Barrier*

In many parts of the world, people and patients speak English but with limited proficiency. In such situations, it is important to use simple words and speak clearly and directly. With a complete language barrier, interpreter services may be required; it is better to avoid using family members and friends. Always address the patient, not the interpreter. If possible, it is wonderful to learn simple greetings and phrases in native language to immediately connect with the patients. Even better is the universal language of a smile.

(c) *Styles of Communication*

Styles of communication can vary significantly among different cultures, and some of these include direct and indirect communication: eye contact, personal space and touch, and gestures [3]. In many Asian countries, the communication style is indirect without eye contact, especially when speaking to the elderly or to those in position of authority, including physicians. In other places, not making eye contact is considered disrespectful. In some cultures (e.g., Central and South America), people are very expressive and very comfortable standing close to one another. In other cultures, particularly in the Middle East, a certain distance must be maintained when conversing, especially between different genders. In some countries, handshakes are the most common form of greeting. In some Asian countries, people may just nod or bow as a sign of acknowledgment.

The level of assertiveness may also vary significantly from one country to another. For example, people and patients may be very assertive in the Middle East and Europe, whereas in some Asian countries, patients may be very deferential. Therefore, it is important for physicians to be cognizant of different communication styles and adapt their style accordingly for effective communication. It is important not to get offended by an assertive patient, encourage a deferential patient to more openly express himself or herself, or take a complaint of a stoic patient very seriously.

(d) *Religion*

Many different religions are practiced throughout the world and play a vital role in some cultures. Having some basic knowledge of religion(s) in the country you are visiting prepares you to understand how some people may view health or illness from a religious perspective. It is important to be open-minded and tolerant. In some places, it may be necessary to dress modestly, especially for female physicians, as a sign of respect.

(e) *Trust and Belief in Modern Healthcare*

Although visiting physicians may be considered skilled and competent clinicians and surgeons, don't expect that people will automatically trust you. People belonging to different cultures have very different perspectives on what is healthy and how to treat illness. Some may believe in complementary, alternative, or traditional remedies. In such circumstances, it is important to explore and understand others' perspectives, explain your perspective, and use negotiation skills to arrive at common ground and mutually acceptable treatment plans.

(f) *Decision-Making*

In the United States, we encourage and respect our patients to make their decision about therapeutic intervention. In many countries, autonomy is not the norm when it comes to health decisions. Often, the entire family may be involved, or the role is designated to a senior male member of the family. Therefore, it is important to be flexible and facilitate discussions that will ultimately be of best interest to the patient.

(g) *Gender Issues*

Gender roles are strictly defined and enforced in some parts of the world. Sometimes we may not agree or feel comfortable with what we observe. It is better to go with the flow and handle these issues as they come. Women in many foreign countries may feel shy or be culturally silent. While it is hard to overcome barriers, it is important to engage female patients to try to get a complete history. Having a female chaperone from the native culture who speaks the local language fluently can be a huge help. Even if a male relative does most of the communication, make sure to address the female patient when asking questions or giving directions. Some female patients may be reluctant to be examined by a male physician on cultural and religious grounds. We must respect their preferences.

(h) *Other Issues*

Many cultures are sensitive about photography and don't appreciate visitors taking photos of them around town, clinics, or the operating room. This can pose a

point of tension or conflict as many nonprofit organizations need “pictures from the field” to maintain their fundraising operations. As a physician in the middle between the patient and the sponsoring organization, this can be an awkward situation to navigate. It is generally wise to stay on the side of the patients and their family. Make sure that the photographers receive consent of the patients.

From time to time, celebrities, journalists, dignitaries, or local and national officials may visit a mission. These visits can be distracting. However, they may have important purposes for fundraising, goodwill with local government for long-term relationships, future support, and so forth. While courtesy and respect are due to VIPs, don't let their presence take away from the work at hand, and maintain your focus on providing the best care possible.

## Conclusion

The ability to be of service to others is a privilege. It is important to respect other cultures and perspectives, assess local needs and opportunities, operate with respect, and always exercise careful judgment to provide the best possible clinical and surgical care when performing medical missions. This is where art and medicine intersect, and cultivating these skills will help you succeed not only when you are abroad but also in your home practice. Be open to learning from your patients, hosts, support staff, and the foreign health systems. There are many gems and pearls that you can adopt and bring back to your home practice and institution.

In addition, the impact of overseas volunteerism is much greater than just delivering medical or surgical care. It brings people and communities together regardless of religious beliefs, language barriers, or political conflicts. Aside from professional growth, we gain so much mentally and spiritually by giving.

We encourage you to seriously consider involving yourself in outreach, either internationally or at home. We advise you to assess the needs and cultural aspects of your visiting country and find mentors and colleagues with international experiences who can guide you further. Sometimes, it is better to start medical missions once you have become an experienced surgeon. Often, the resources are limited, and the equipment is less than ideal in developing countries; therefore, it is important to be extremely skilled and adaptable to avoid adverse outcomes. There are many ways to contribute, and every effort should be made to maximize the spirit of intellectual, personal, and professional exchange.

## References

1. Resnikoff S, Felch W, Gauthier TM, Spivey B. The number of ophthalmologists in practice and training worldwide: a growing gap despite more than 200,000 practitioners. *Br J Ophthalmol*. 2012;96(6):783–7.

2. MCW Guide for Global Engagement. Accessed Dec 2016. Available from: <https://www.mcw.edu/Office-of-Diversity-and-Inclusion.htm>.
3. Culture Crossing Guide. American College of Surgeons. Accessed Jan 2017. Available from: [www.operationgivingback.facs.org](http://www.operationgivingback.facs.org).



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Title: Professor of Ophthalmology, Tufts New England Eye Center

Special Interests/Professional Duties:

- International ophthalmology and public health
- Medical and Surgical Management of Glaucoma
- Leadership and educational initiatives for quality education and professional development of surgeons in training

Global Experience:

- Traveled extensively to provide medical and surgical eye care in under resourced areas
- Volunteered during multiple trips conducting educational programs and symposia with an emphasis on skills transfer and training of local physicians
- Trained many international glaucoma fellows



**Balamurali K. Ambati, MD, PhD**

Title: Professor of Ophthalmology & Director of Cornea Research at University of Utah

Special Interests/Professional Duties:

- Clinician-scientist, conducting research in drug delivery for ocular uses
- Angiogenesis
- Co-founded iVeena, which focuses on developing an implant for drop-free cataract surgery

Global Experience:

- Conducted eye screenings for underinsured and underserved communities
- Volunteered for ORBIS, Sight Life, Sight for Sightless, Help Mercy International in Ghana, Zambia, India, Panama, Malaysia, Philippines, and Indonesia

# Chapter 14

## Country Spotlight: China



**Yi Zhang**

*Give a man a fish; you have fed him for today. Teach a man to fish; and you have fed him for a lifetime. – Chinese Proverb*

### Overview

China is the world's most populous country with nearly 1.4 billion people occupying the earth's fourth largest land mass. With a continuous culture dating back nearly 4,000 years, China has also been a leading civilization during many centuries of economic prosperity and flourishing artistic and scientific progress. The origination of paper, gunpowder, tea production, and moveable type in China in addition to its unique writing system, art, culture, and philosophies has made an indelible mark on the world. China's history in the nineteenth and twentieth centuries has been more tumultuous—facing foreign occupation, civil unrest, and the collapse of the long-established hereditary system of dynastic rule. China has grappled with the ongoing challenge of how to provide for a vast and diverse population and how to balance its long-standing culture with the demands of modernization and Western influences.

Since its establishment as the People's Republic of China in 1949, its journey of development has been harrowing. Strict communist rule under Mao Zedong ensured the country's sovereignty, but the failed attempts at collectivizing agriculture and industry during the Great Leap Forward's efforts coupled with violent ideological and political cleansing during the Cultural Revolution took many millions of lives. From 1978 onward, Deng Xiaoping and successive leaders held on to rigid political control but began a more market-oriented economy and eventually increased openness to the global arena. Today, China's economy has become one of the world's largest, with a formidable upper class who now wield astonishing wealth. However,

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the recent rapid growth has come with accelerated inequality, rural poverty, and serious environmental pollution. Since 1979 China also instated its extremely controversial one-child policy, which was revised in 2015 to allow couples to have two children, in part to mitigate the rapidly aging society. Riding the seismic political, economic, and social waves over the last century, China continues to be an immensely complex, diverse, and dynamic place that is still changing at an astonishing pace.

## Geography

China has a diverse landscape with features ranging from fertile lowlands surrounding the Yangtze and Yellow Rivers, the Gobi Desert along the border with Mongolia to the Himalayan mountains in the West and about 9,000 miles of coastline to the East. Most of the population is concentrated in major cities along the Eastern coast, which are much better resourced than their inland and rural counterparts. The inequality is exacerbated by the *hukou* or household registration system that ties a person's social benefits to their local government. Increasing economic opportunities in urban regions now draw hundreds of millions of migrant workers from rural areas who do not receive healthcare, education, or retirement benefits from their local rural government.

China claims a total of 23 provinces, 5 autonomous regions, and 4 municipalities. China's consideration of Taiwan as a province remains highly contested, as is China's control of the Tibet Autonomous Region. Autonomous regions in China contain a high proportion of a certain ethnic minority group (China recognizes 55 ethnic groups and the dominant Han Chinese identity) and have their own local government with more legislative rights than do provinces. Municipalities, including Beijing and Shanghai, have the same rights as a province but are under the direct administration of the central government. China also has two special administrative regions, Hong Kong and Macau, which exist under the "one country, two principles" standard formulated during the 1980s by Deng Xiaoping, in which these two regions would remain a part of China but could maintain their capitalist economic and political systems inherited from respective British and Portuguese colonial rule.

## Languages

Although many may perceive China as having a monolithic language, this could not be further from the case. There are seven to ten main language groups in China, many of which are mutually unintelligible. These include Mandarin, Cantonese, Hakka, Wu, Min, Xiang, and Gan, with each containing numerous distinct dialects.



Mandarin Chinese (or a variant of Mandarin) is spoken natively by about two-thirds of Han Chinese who comprise around 90% of China's population. Mandarin was only set as the official language of China in the 1930s. Because it is the official language, people usually refer to Mandarin when they refer to the "Chinese language." Despite differences in the spoken language, Chinese is unified by a common logographic script where characters are conceptual representations rather than phonetic ones, and each character consists of only one syllable. Mandarin is a tonal language with four tones, which drastically affect the meaning of words, but is often not represented in the Romanization of Chinese words (pinyin). Mainland China uses a simplified version of the written script promoted in the 1950s to make the language easier to learn by a broader population in China, while Taiwan, Hong Kong, and Macau still use traditional Chinese script.

Locals, particularly in larger cities, have been gaining English proficiency due to a 2001 mandate for compulsory English education from primary school, overall increased Western influence, emigration, and overseas study. Because of the significant differences between Chinese and Western languages, locals do not usually expect Western visitors to know the language, and visitors' efforts to learn and speak Chinese are mostly appreciated. There is, however, a strong expectation that people with Chinese heritage do speak the language, which can be challenging for children of the Chinese diaspora who no longer speak Chinese. In recent years due to increasing numbers of Chinese learners and the prevalence of foreigners in China and on Chinese media, many locals have become more accustomed to non-native Chinese speakers. In rural areas and central or Western China, however, there are fewer English speakers and bilingual resources. While not necessary, it can be a delightful surprise for natives when visitors also learn some of the unique dialect of the region beyond Mandarin, particularly in regions where a strong contingent still speak it, such as Cantonese in the Guangzhou and Hong Kong areas.

## Food

Food plays a significant role in Chinese culture and consciousness. One aspect is the traditional view of food as medicine, possessing qualities that can balance or tonify different aspects of the body. As a society with strong collectivist values, shared "family style" meals, from a simple family dinner to an elaborate business banquet, are a cornerstone of the Chinese experience. In official banquet settings, for business or to welcome guests and celebrate major holidays or as family events, hierarchy is extremely important, and the seating arrangement is carefully followed. Guests of honor or the most senior member is seated first, and no one should begin eating until the host has indicated it is appropriate to do so.

There are distinctive regional differences in the cuisine, such as extremely spicy foods in the southwest province of Sichuan (also known in the USA as Szechuan),

a proclivity for wheat-based foods such as noodles, steamed buns and dumplings in the North, and rice-based diets in the South. With cities becoming increasingly cosmopolitan, including the growing ubiquity of American fast-food chains like KFC and Pizza Hut (though they are usually considered of higher status than their American counterparts), eating habits are also rapidly changing.

## Healthcare

With nearly 20% of the world's population, China has long faced the challenge of providing healthcare for all of its citizens. During the transition to communist power in 1949, the health system was modeled upon those of other communist allies, with fully government-owned and operated healthcare facilities and workers. A successful system of community health workers, who were referred to as “barefoot doctors,” provided basic health services in the villages and kept fees at a minimum, sidestepping the need for health insurance [1]. As China transitioned toward a market economy in the mid-1980s and government support in all sectors decreased, public funding for hospitals and healthcare workers dwindled, and many made up for these funds from charging for pharmaceuticals and technical services such as advanced imaging, which were not regulated by government pricing.

Mistrust of the healthcare profession spread as more hospitals and doctors became focused on their economic survival and capitalized on profit-making opportunities rather than their patients' health [1]. The high costs of healthcare delivery as well as the lack of insurance coverage made healthcare inaccessible for a large proportion of the population particularly in rural areas. In 2012, a plan for universal government-subsidized healthcare was launched providing modest but comprehensive coverage to 95% of the population [2]. Copays are still high, and quality of care still varies widely between urban and rural areas, and so patients still tend to flock to major hospitals in big cities for treatment [2].

It will remain a challenge to maintain coverage and care for the growing population, particularly as the one-child policy has accelerated the rapid aging of the society, with nearly 10% of the population considered very elderly. In most cases, hospitals expect patients to pay for everything up front and for supplies, like IV drips, bandages, etc., to be brought by the patient. This is a huge challenge for the critically ill and the elderly, who must be accompanied by a caretaker or family member. The lack of long-term care and home care services and the high cultural expectations placed on family members to take care of the elderly will continue to be a heavy burden. Lifestyle changes such as high smoking prevalence particularly among men and accelerating obesity in youth also pose significant challenges.

Additional reforms proposed in 2015 focus on expanding care and coverage through developing private insurance options as well as private hospitals, including foreign hospitals, reducing patient out-of-pocket costs, and increasing investment in traditional Chinese medicine hospitals for every county and municipality as well as an online health databases and other online health products.

## Gender Roles and Relations

Chinese culture is deeply rooted in Confucian values of harmony and respect for societal hierarchy. Traditionally, women held much lower status than men, and when married, were claimed by the husband's family who often dictated most aspects of her life. Thus, most families felt like their daughters were raised for other families, and only sons counted. Since the establishment of communist rule, with Mao Zedong's declaration that "women hold up half the sky," a strong push was made toward gender equality. While women's participation in the workforce skyrocketed, traditional beliefs around women's responsibilities at home and with childcare remained strong. The one-child policy both curtailed families from continuing to have children until they conceived a son but also was a strong factor in female infanticide (particularly in rural areas) and millions of families who simply did not register their female children [3].

Overall, however, visitors are not expected to treat men and women differently, particularly in a workplace setting, and in general, one should note that affectionate platonic behavior between members of the opposite sex is not part of the culture and can be quickly misinterpreted.

## Requirements for Medical Volunteering

Requirements for volunteers vary by region, host site, and also length of stay, though overall visa requirements have relaxed in the past decade. Visitors from Western countries to Mainland China are required to have visas. Volunteers on shorter programs, up to 90 days, with a stronger emphasis on education will sometimes travel on an L tourist visa or an F visa intended for those going on exchanges, whereas longer-term placements, especially more hands-on volunteering (as opposed to studying or shadowing), may require a Z work visa with more stringent requirements.

Hong Kong does not require a visa for tourists from the USA visiting up to 90 days, though a visa is required for those planning to work or study. As Hong Kong is a special administrative region, it has separate regulations for entry from China, and visas between the two places are not interchangeable. Taiwan does not require US citizens to have visas for stays up to 3 months, with no additional requirements for volunteer work.

## In Conclusion

China today reflects a mix of traditions and values from Confucianism, Taoism, and Buddhism with the overlay of a Western lifestyle. Large cities in China may feel familiar to Western visitors due to modern amenities and growing affluence. Many

urban dwellers have quickly adopted mobile technologies, conducting a lion's share of daily life and work on the all-in-one WeChat app, from paying utility bills, connecting with friends to online commerce, managing health services, hailing cabs, and much more. While being awed by the rapid growth in technology, it will also be difficult to ignore the Chinese government censorship of many foreign platforms, including Google and Facebook. Relationships are key to getting things done in China, and hosting (long) meals, giving gifts, and exchanging favors are essential to the relationship and trust building process that many Chinese see as necessary before business can be conducted. In these cases, it may seem as if time can stretch and rules can bend, as ones' connections and sphere of influence changes.

Although many aspects of China may seem paradoxical and unfamiliar to Westerners, the complex, diverse, and dynamic nature of Chinese society during this rapidly changing time make it an unmistakably fascinating place.

## **Considerations**

### ***Doing Business by Building Relationship: Eating and Drinking***

China has a relational culture, and doing business is done by building relationship. This may involve lavish meals or even sightseeing trips (as opposed to just time in the meeting or operating room). Volunteers should not be surprised by these offers but should also be aware that some of these gestures do not purely represent hospitality and may be also called on in the future for favors to be returned. In addition, a heavy drinking culture in the workplace is quite prevalent in China and can sometimes be difficult to avoid. In rural areas and areas home to many ethnic minority groups living in China, drinking alcohol in large amounts is also part of the custom for welcoming guests and a requisite for building trust.

### ***Common Diseases and Health Factors in China***

Health outcomes have improved dramatically for China, and the healthcare issues plaguing China today have shifted from contagious to chronic. Chinese society has rapidly become a consumer economy with an overabundance of fast food and sedentary lifestyles, and as such, cardiovascular disease, diabetes, and cancers have become the major causes of death. Extremely poor outdoor air quality plagues city dwellers, and rural residents face indoor air pollution from cooking with coal and biomass and garbage fires. Smoking is also highly prevalent (though decreasing), particular among males, and exposure to secondhand smoke is nearly ubiquitous. Water quality is a huge challenge across China, and drinking tap water is not advised. The growing electronics and e-waste recycling in China has also raised risks of heavy metal poisoning and other illnesses related to contamination.

## ***The Rural/Urban Divide and Challenges with Migrant Worker Health***

Before 2010, the majority of China's population lived in rural areas. Now a little over half (and growing) are moving to city centers. This rapid urbanization involves the movement of many migrant workers from the countryside, who often times do not have the legal access or income to afford healthcare in the cities. There is also a huge disparity in the healthcare available in rural areas compared to city centers. If working in a rural area, please also note if there are ethnic minorities in the region or if it is be a politically sensitive area.

### ***Politics, Surveillance, and the Party Line***

With recent Chinese policies limiting influence from the West, Western volunteers going to China will likely need significant support from local institutions for visas and, if allowed in politically sensitive area such as the Muslim regions in Xinjiang Province or Tibetan areas around the Tibet Autonomous Region and surrounding provinces, might experience heavy surveillance. Especially during official work situations, but even during personal time, volunteers representing an area or agency in the West should be careful of discussing sensitive political topics (such as the China/Taiwan, China/Tibet, etc. issues) and may be formally corrected or even admonished by local officials or institutional partners in China on views that do not align with those of the communist party.

## **References**

1. Blumenthal D, Hsiao W. Lessons from the east — China's rapidly evolving health care system. *N Engl J Med.* 2015;372(14):1281–5.
2. Gusmano M. The role of the public and private sectors in China's health care system. *Global Soc Welf.* 2016;3(3):193–200.
3. Jacka T, Kipnis A, Sargeson S. *Contemporary China.* 1st ed. New York: Cambridge University Press; 2013.

## **Further Reading**

- Schoppa R. *The Columbia guide to modern Chinese history.* 1st ed. New York: Columbia University Press; 2000.
- Schoppa R. *Twentieth century China.* 2nd ed. New York: Oxford University Press; 2004.
- Louie K. *The Cambridge companion to modern Chinese culture.* 1st ed. New York: Cambridge University Press; 2008.
- Li H., Hilsenrath P. Organization and finance of China's health sector. *Inquiry J Health Care Organ Provision Financ.* 2016;53. pii: 0046958015620175.

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- Collaborates with VIA's comparative healthcare programs to foster more culturally competent medical professionals

**Global Experience:**

- Works with individuals to understand more about Chinese culture across East and South East Asia

# Chapter 15

## Country Spotlight: India



**Alan L. Robin**

*Intelligence and capability are not enough. There must be the joy of doing something beautiful.* – Govindappa Venkataswamy

India is the second most populous country in the world with over 1.25 billion people. It is geographically diverse, from the hills near Palampur (the home of the Dalai Lama) in the foothills of the Himalayas to the Southern near tip where the land is flat. As the terrain differs, so does the weather and language. The weather varies from that at the northern border near Nepal where there are four seasons to the South as in the Tirunelveli District where the seasons are hot, hotter, and hottest. Likewise, there are distinct rainy seasons that differ depending upon the location. Therefore, before you venture out, make sure that you are aware of the climate and possibility of rain and extremely hot weather. There are 29 states with 22 official languages. Each state also has its own dialect(s) which may be distinct and difficult for someone in a neighboring state to understand.

Almost everyone in medicine speaks English. It is unusual to have language problems. In the South, a head-nod gesture that may confuse you is the nod from side to side. This usually means yes or acceptance as opposed to our up and down head movements (nod). All signs on major highways (I highly recommend NOT driving) are in English as are signs at bus, train, and airline terminals. Most of the air terminals are now relatively modern.

When planning to travel to India, there are many gateways. Delhi (one of the most polluted cities in the world) experiences climate inversions in December and January making the fog extremely dense, potentially causing air traffic delays and rerouting of flights. The major airline hubs for international travel (and all have relatively new and modern facilities) are Chennai (MAA), Mumbai (BOM), and

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Delhi (DEL). Other cities such as Pondicherry have limited foreign flights. These airports have Western-style hotels near or at the airports. All foreign national entering India are required to have a visa. E-Visas can be purchased in advance ([www.e-visaindia.org.in/India](http://www.e-visaindia.org.in/India), Visa/Application), or one can obtain a form for a paper visa (<https://indianvisaonline.gov.in/>). One can take the applications to an Indian consulate or use a visa service to help. I usually apply for a multiple-entry 10-year tourist visa, but there are many different types of tourist visas. To enter India, your foreign passport must be valid for an additional 180 days after leaving the country.

Transportation is usually not a problem. Always negotiate before a trip with taxi drivers. In many cities, such as Ahmedabad, three-wheeled “tuk tuk or auto rickshaw” vehicles are the norm. The bus system is excellent as is the train system. I personally prefer the airlines, and there are many of them in India. When walking, remember that one drives on the left as in the UK rather than on the right as in the rest of the continent. Also, there are often no sidewalks. You therefore may share the road with cattle and other animals so be aware of where you step. Traffic is basically like fractals: very chaotic. The rule of the road is often the louder your horn and the bigger your vehicle, the more right of way you may have. Some highways have lines demarcating lanes, but these lines may not be respected so be aware. Likewise, on divided highways, the center dividing walls may not be respected.

Healthcare is always important, regardless of where one goes. Always bring your own prescription medications with you. Pharmacies in India do not require a prescription to buy a medication. Also, unlike many Western countries, each state is allowed to make generics, and the generics may contain the name of the branded product. For example, there may be multiple manufacturers of the generic latanoprost, some of which carry the name “Xalatan.” While some of the manufacturers are reportedly excellent, that may not always be the case. It may be easy to get your prescription drugs, but the quality might not be the same due to a lack of regulations. Other health aids such as toothpaste, deodorants, etc. are easily available. Clothing is also relatively inexpensive.

Dress is always a question. It is important to dress modestly. For women, sleeveless shirts, shorts, and short-length dresses are inappropriate. Likewise, shorts are not appropriate for men. One doesn't often see men, except for laborers, going shirtless. One can buy relatively inexpensive Indian tops and pants when in India. Also, sandals are always acceptable. If you enter temples, you will be often required to remove your shoes/socks.

When traveling I usually bring a mouthwash as some places don't have purified drinking water. In these cases, I will have mouthwash in my mouth when showering or washing my face so that I don't inadvertently swallow the water. I only drink bottled water beverages, ensuring that the top is sealed before I use it. When having coffee or tea, ensure the water has been boiled and is scalding hot when



served. “Indian coffee or tea” is when hot milk has been added and often in addition with sugar. Popular soft drinks (including diet sodas) are readily available as are beers. I personally do not find the Indian wines very tasty. I try to stay away from meat and chicken having seen inadequate storage. I also only eat peeled fruits and vegetables (e.g., bananas, mangoes, watermelon) rather than salads and apples as one doesn’t know where the last person who handled the skin of the fruit may have been. Most restaurants offer a choice of vegetarian (VEG) or nonvegetarian (NON-VEG). If vegan, it is easy to maintain this diet. The food is excellent but may be different than what you are accustomed to. You may want to carry Pepto-Bismol if needed.

Toilets occasionally are not fully Western. I always carry tissues with me to use in an emergency. Also small containers of hand sanitizers are important. Additionally, there are regions where there are many mosquitos and flying insects. Insect repellants are important.

The majority of the population is rural and approximately 50% of the population is engaged in agriculture. Almost one-third of the population lives below the poverty line. Yet there are over 180,000 millionaires and 1772 individuals have over US\$ 50,000,000 of assets.

Unlike sub-Saharan Africa, where there is a poor infrastructure, the infrastructure in India is relatively good and improving at an accelerated rate. There is a relatively good road and highway system connecting cities and villages. Trains and busses are plentiful and relatively inexpensive. The air schedules between Indian cities are dramatically improving. Flights overall are on time, and a good source for flights and fares is <https://www.google.com/flights/>. Baggage requirements are quite strict, and carry-on is usually limited to something very small such as a briefcase or purse.

## **The General Population**

Despite the rising economy, there are some startling dichotomies. Close to half of the population has cell phones and televisions. Ten percent of households have computers. Yet hygiene is a major problem. Over one-half of the population has neither a latrine nor indoor drinking source. Forty percent of the population have a latrine, yet at least one person in the family does not use it. Twenty-five percent of men and seventeen percent of women defecate in public. There is a feeling that open defecation is normal and using a toilet is not healthy. Superstitions and traditions may overpower logic. I bring this up because common misperceptions abound regarding eye care. Protective glasses are not commonly used. Eye care providers are infrequently seen so spectacle use is limited.



**Alan L. Robin, MD**

Title: Glaucoma Specialist

- Associate Professorships in Ophthalmology and International Health at Johns Hopkins University
- Clinical Professor of Ophthalmology at the Veteran's Administration

Special Interests/Professional Duties:

- Principal investigator, Aravind Comprehensive Eye
- Studying prevalence studies in Tamil Nadu, India
- Holds patents for interactive diagnostic algorithms for glaucoma, medication delivery systems, and glaucoma surgical devices
- Current research involves use of newer delivery systems for medications to treat open-angle glaucoma, innovative collaborative screening for glaucoma and diabetic retinopathy and improving adherence to glaucoma therapies

Global Experience:

- Deeply involved in both the global eradication of needless blindness and establishing strategies for better eye care delivery
- Authored or co-authored 230 peer-reviewed papers and 24 book chapters and given well over 100 invited lectures in the USA, Canada, Australia, New Zealand, Europe, Japan, South America, India, and Southeast Asia
- Consultant to the International Association to Prevent Blindness, SEVA Foundation, Tissue Banks
- Involved with ORBIS International, Aravind Eye Foundation, and World Health Organizations
- Completed over 100 trips to India and Nepal since the 1980s and worked closely with Dr. Ruitin Kathmandu and the Aravind Eye Institute
- Co-director at Aravind Eye Institute's implementing glaucoma service
- Honorary member of both the Indian and Nepal Ophthalmological Societies

# Chapter 16

## Recollections of My International Experiences



Marilyn T. Miller

I never had any aspirations to do international service until I was in a part-time private practice with Dr. James E. McDonald (Jay), president of a very small NGO, FOCUS, which initially worked in Haiti but later dedicated its efforts in Abak, Nigeria. I had three children, was widowed, and so was not able to leave Chicago. Still, I was intrigued with the challenges of being an ophthalmologic volunteer internationally, and when the nest cleared, I took the first opportunity to join Jay and the FOCUS volunteers to spend a few weeks in Abak, Nigeria. There we were working very hard to see an enormous clinical volume.

We arrived a day early to examine the potential surgical candidates. Waiting for us was a little boy sitting lethargically with his mother with one eye positioned at least 2 inches from its normal site because of a tumor. The obvious involvement of his brain from the extension of the tumor was a very bad prognostic sign. At that time, I missed my “Ivory Tower” support realizing we had little to offer this family and could not even arrange some amelioration for his next few months.

But my recollections of those weeks in Nigeria were not always sad. As Jay would say, we needed to make blind people see and that we accomplished with cataract surgery. It was before access to IOLs (intraocular lenses), so the optical correction was +10 hyperopic glasses which often had a residual refractive blur but were a big improvement in an individual with vision obscured by bilateral cataracts. By the end of my stay, I was thoroughly “bitten by the international bug” and returned to Abak almost every year for a number of years. Later I went more for educational reasons, teaching and supervising the residents from a small ophthalmology training program a few hours away.

The memorable occasions from my global service are a mixture of rewarding and frustrating experiences—the appreciation by the residents from a medical school who had no access to an operating microscope or IOLs except when a

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FOCUS team arrived in Abak, the gratitude of restoring sight to the breadwinner of a family, the friendships with our Nigerian colleagues, the teaching of the students at the medical school, the nearby market where anything and everything were available, and the beautiful Nigerian children who had little contact with doctors so were eager for an eye exam—at least until we put in the drops!

And then there were a few very amusing events, usually because of my lack of understanding of cultural norms. Initially, the female FOCUS doctors wore white skirts and blouses and not slacks except in the FOCUS house where even shorts were acceptable. One day in these early trips when I was somewhat naïve, I wanted to go to the local bank to get some Nigerian Naira for my Saturday trip to the market. Our house manager, Friday, said I should get on his motorcycle as a passenger and he would take me to the bank. The sight of a white woman dressed in white on the back of the motorcycle supplied local gossip for days.

On arrival at the bank in this very small, rural Nigeria town, I presented my American Express checks which in the USA I had been told were acceptable everywhere. First the cashier looked at them, summoned the manager who then called the bank president. Needless to say I was unable to cash these foreign money substitutes, and I learned an important lesson for many international countries—take a generous amount of American dollars which are usually good everywhere.

It has been a privilege to have these international opportunities, and I have gained much more than I have given. I hope to continue for a few more years.



**Marilyn T. Miller, MD, MS**

Title: Pediatric Ophthalmologist, Professor of Ophthalmology at the University of Illinois at Chicago (UIC)

Special Interests/Professional Duties:

- Interest in Zika, strabismus and teratology
- Research in thalidomide embryopathy
- Collaborated with pediatric ophthalmologist in Brazil studying the ocular effect of misoprostol which can cause Möbius syndrome
- Zika epidemic in Brazil is the most recent interest
- Served on advisory committees of the World Health Organization, Smith Kettlewell Eye Research Institute, Bernadotte Foundation, AAO and Foundation of the American Academy of Ophthalmology
- AAO representative of the International Agency for the Prevention of Blindness
- International Affairs Committee of American Academy of Pediatric Ophthalmology and Strabismus

Global Experience:

- Over 25 years of international ophthalmology including Nigeria, India, Asia and several South American countries

- Focus Inc involvement visiting rural Abak and Nigeria to educate local physicians
- Educational activities in the Asian Pacific region at Aravind Hospital in Nadural
- Collaborative programming with Tianjin eye Hospital in China
- Research activities in Sweden regarding congenital anomalies and teratogens

Awards for International Service:

Humanitarian Award from the American Academy of Ophthalmology (AAO)

AAO International Blindness Prevention Award

Howe Medal by the American Ophthalmological Society (AOS) for “distinguished service to ophthalmology”

Venkataswamy Oration Award from Aravind Hospital in Madurai

Jose Rizal Award from APAO

2012 International Gold Award from the Chinese Ophthalmological Society

Lifetime Achievement Honor Award

Marshal Park Bronze and Silver Medal from AAPOS

Lectureship:

Costenbader and Scobee Lectures

Apt Lecture of the AAPOS

Fralick lecture at the Univ of Michigan

Dr. Miller has visited an eye clinic in rural Abak, Nigeria, for over 25 years with a small nongovernmental organization, FOCUS, Inc. Originally, the visits were focused on treating patients, but now the role has changed to more educational area and recently received a named lectureship from the Ophthalmological Society of Nigeria.

Dr. Miller has served on advisory boards including the Advisory Committee of the World Health Organization, the Smith-Kettlewell Eye Research Institute, the Bernadotte Foundation, the AAO, and the Foundation of the American Academy of Ophthalmology. She also served as the AAO representative to the International Agency for the Prevention of Blindness (IAPB). She was the president of AOS and on Council.

Dr. Miller is a charter member of AAPOS (American Academy of Pediatric Ophthalmology and Strabismus) and had the honor of serving AAPOS as their president, a member of its board, and chair of their International Affairs Committee.

She has been involved with many activities in the Asian Pacific region including participating in educational programs.

# Chapter 17

## Regional Spotlight: Africa



Sidney K. Gicheru

*Do not let what you cannot do tear from your hands what you can.* – Ashanti

Africa is an intriguing place. It is one of the most misunderstood continents. For many, unfounded myths make it a dark, avoidable place. For those of us who have lived or work there, this could not be further from the truth. In reality, it is exhilarating and intoxicating. It is one of the most exciting places in the world right now. For the physician with their heart in the right place, it is a great place to have active influence in people's lives and health.

### Debunking the Myths

Let's start this introduction of humanitarian medical aid in Africa by debunking some of the myths:

Myth #1: Africa is one country. This is false. Africa is a continent made of 54 independent countries. Each country has its own leadership and citizens. The countries are differentiated by language, culture, and history.

Myth #2: Africa is all jungle or, similarly, Africa is all desert. Both are false. The world's subtropical largest desert, the Sahara Desert, is found in Africa. The 4th biggest subtropical desert, the Kalahari Desert, is also found in Africa. However, desert only makes up about 25% of Africa's surface area. About half of the continent is lush savannah or grasslands. Jungle, which is found mainly in Central Africa, only covers a small percentage of Africa's surface area. The jungles are diminishing rapidly because of urbanization, as well as razing acreage for farming and exploration for natural resources. There are highlands with higher altitudes than Denver in Kenya, Ethiopia, and Tanzania. There are snowcaps on

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S. K. Gicheru  
Lasercare Eye Center, Irving, TX, USA

Mount Kilimanjaro and Mount Kenya. There is the Great Rift Valley that dwarfs the Grand Canyon and extends from Lebanon to Mozambique. There are beautiful beaches along all of Africa's coasts.

Myth #3: Africa is small. This, too, is false. Africa is the world's second largest continent. It is bigger than China, India, the contiguous USA, and most of Europe combined. It is also the second most populous. It had a population of 1.216 billion in 2016 according to United Nations Population Division data [1]. According to 2015 World Bank data [2], the three largest countries, Nigeria, Ethiopia, and the Democratic Republic of Congo, had populations of 182 million, 99 million, and 77 million, respectively.

Myth #4: Africa is homogenous. This is also false. Africans are very diverse. It is thought there are over 3000 tribes in Africa and that over 2000 languages are spoken [3]. Most tribes have their own language and culture. Their physical features are different too. A well-travelled African can tell you where another African is from just by looking at their facial features. In addition to the Indigenous Africans, there have been people from other continents in Africa for thousands of years. They are the Boers, who were Dutch people who colonized South Africa before it was taken over by the British. There are millions of people of Indian and Pakistani origin, many of whom were forcibly migrated to Africa by the Europeans as cheap labor. There is a stronghold of Lebanese traders in West Africa. There are many descendants of European settlers, who never left the continent and are as much African as anyone else. Recently, there are many immigrants from China, who are helping modernize African infrastructure (a story that has been largely ignored by the Western media).

Myth #5: Africa, as a whole, is always at war. This is also false. Most visitors find the people of Africa to be extremely friendly and happy. This runs counter to Hollywood's stereotypes of warring tribesmen and guerillas. The media in most Western countries mainly covers African stories about war, famine, and other disasters. For example, most media outlets did not cover the story that most African economies had strong economic growth during and immediately after the Great Recession compared to the slow growth experienced by the USA and most Western countries. But, there is also conflict in Africa. At the time of this writing, the UN only has active peacekeeping troops which are Sudan, Chad, Congo, Somalia, and to some degree Burundi [4].

Myth #6: Africa is all Muslim. Religion in Africa is multifaceted. Most of the world's major religions have a story in Africa. The most prevalent religions in Africa are Christianity, Islam, and Traditional African religions. The most prevalent religion in sub-Saharan Africa is Christianity. The largest religion in North Africa is Islam. All told, the prevalence of Islam and Christianity is roughly equal when you take Africa as a whole. Traditional African religions remain as independent religions but have also colored both Christianity and Islam in Africa. Christianity started its rapid growth in sub-Saharan Africa when the continent was colonized by the Europeans in the nineteenth century. There are adherents of Judaism in many countries including Ethiopia, Kenya, Uganda, Cameroon, Ghana, and Gabon. Hinduism has existed on the African continent since the 1800s. Bahaism has strongholds in certain regions in Africa.

## Interesting Facts About Africa

Now that we have dispelled the myths, let's discuss about some important realities about Africa:

1. Poverty is decreasing: Africa's people are poor for the most part. This is especially true in rural areas and the slums in urban areas. According to the World Bank [2], the incidence of extreme poverty has fallen from 57% in 1990 to 42% in 2012, but it still remains high. According to 2015 World Bank data [5], the GDP per capita income is \$3714.30 in sub-Saharan Africa. But, there is a great variance. For example, the per capita income is \$40,718 in Equatorial Guinea and \$618 in Central African Republic. Income distribution is also more skewed than in Western countries with a few extremely wealthy people in each country with the vast majority of people being poor.
2. African economies are growing: The tide seems to be turning. Africa is home to a third of the planet's mineral reserves and a tenth of the oil, and it produces 2/3 of all diamonds [7]. According to *The Economist* magazine [7], between 2003 and 2013, real income per person grew by more than 30% continent-wide. There is a strong middle class growing in many countries. Economic growth in Africa, as a whole, grew by an average of 5% per year between 2005 and 2015, while most of the world's economies were stagnant [8].
3. African governance is improving: Unlike the dictators of the early postcolonial days, most countries now have better governance. Democracy is growing. According to *The Economist* [7], all countries in Africa have a multiparty constitution except for two: Swaziland and Eritrea. In most countries, there is better management of the growing stores of natural resources that are being found. While most Western countries suffered terribly during the Great Recession, some African countries had economies growing at 6–7% rates per year.
4. Technology is spreading in Africa: Technology in Africa is improving. If I told you that in the early 2000s, I travelled to a country and had dinner with my Dad and he paid for the dinner bill with his cell phone, you would probably think the country was China, Japan, or a European country. The fact of the matter is the country was Kenya. Because most rural Africans do not have bank accounts, but most have a mobile phone, mobile banking technology has become widespread in Kenya, Tanzania, and Uganda. In fact, Kenya is considered the Silicon Valley of Africa. As a whole, there are three cell phones for every African, which is the same rate as in India. In some countries, mobile penetration is similar to the USA [10].
5. Africa is a young continent. According to 2012 United Nations data [11], it has the youngest population of all the continents with a median age of 19.7. This is compared with a global median age of 30.4. There are several explanations for this. In the past, infant mortality was high, and life expectancy was low due to diseases, accidents, malnutrition, etc. With improving healthcare, more infants are growing to adulthood. Additionally, given the history of high infant mortality



and low life expectancy, many couples (especially in rural areas) have continued to have large families with lots of children. In the past, this was a safeguard to ensure older parents could be taken care of by their children.

## Pre-travel Considerations

Before you make plans to travel to Africa for humanitarian aid, there are some issues you should consider:

1. **Language and colonialism:** Language can create challenges for doctors from developed countries. Language has been shaped by Africa's colonialist history. The vast majority of African countries consider themselves either Anglophone countries (more than 23 countries) or Francophone countries. The remainder identify as Lusophone or Portuguese-speaking (six countries), Spanish-speaking (Equatorial Guinea), or Arabic-speaking countries. The colonial history will often shape governance and medical training. As discussed earlier, there are over 2000 different indigenous languages in Africa.

According to the Institute for Security Studies, the British and French had different styles of leadership when they colonized Africa [13]. The French "did some encouragement of the formation of a native elite," while the British "discouraged the formation of a class of Europeanized Africans." This meant that at independence, the African leaders in French countries were much better equipped to lead their countries. The elites in Francophone Africa speak French like Parisians, and many get their medical, legal, and professional studies in France. Former British colonies suffered initially in the postcolonial period but have made larger strides economically in the long term as evidenced by Kenya and Nigeria.

2. **History:** Africa has a rich history. To understand Africa, you must study its history. It is a good idea to do a little research before visiting a specific African country. It will give you a better understanding about the people, their culture, and their government. An example is the rich history of Ethiopia: It is known that Christianity and Judaism have been in Africa as early as 100 A.D. [12]. It is believed the son of King Solomon and the Queen of Sheba founded the Kingdom of Axum, which was situated in modern-day Ethiopia and Eritrea. The kingdom was initially based on Judaism but converted to Christianity in the fourth century under King Ezana. At that time, the Kingdom of Axum was considered the 3rd greatest economic center in the world after Persia and Rome and was considered larger than China. It acted as a conduit for trade between the ancient Romans and ancient India. Islam was introduced in the seventh century.
3. **Food:** Most Westerners know little about food in Africa. In the USA, the most familiar food would probably be Ethiopian food. The food varies from region to region. Except for Central Africa, most regions have seen their food influenced over the centuries by traders, colonizers, and other visitors. Central Africa diets

include cassava, peanuts, and chili peppers. Ethiopia is known for its Injera, a spongy, sourdough-risen flatbread made from teff. West Africa is known for the fufu, a boiled starchy meal made of cassava, yams and/or cooked plantains, and spicy stews. Uganda is known for their matoke, a tasty mash made from plantains and bananas that is similar in some ways to Mafongo found in Puerto Rico. Most East African food has a heavy Arab and Indian influence (curries, rice, flat breads, etc.) based on the historical trade and workers from those regions. Ground maize is a food staple in Central, South, and East Africa. Cured meats (Biltong) are common in South Africa.

## **Healthcare Considerations in Preparing to Go to Africa for Humanitarian Aid**

1. Tropical disease can be a threat. Rare epidemics like Ebola occur. The Ebola epidemic a few years ago affected just a few African countries on the West Coast, but African citizens from the entire continent were subjected to precautions when travelling. The most common travel illnesses are travelers' diarrhea, the common cold, and the flu. An important infection endemic to many areas in Africa is Malaria. It is advised that you go to the CDC website or a travel medicine specialist to see if Malaria is endemic in the area you are traveling to. If so, you are advised to take Malaria prophylaxis. In some ways, you may be more likely to survive Malaria in Africa, where doctors will diagnose the disease and start treatment quickly because it is common. In the USA, diagnosis may be delayed, which can result in a grave outcome. It is always important to relay your travel history to your doctor should you develop symptoms shortly after a trip to Africa.
2. HIV can be another challenge for the visiting humanitarian aid doctor. Over the years, this disease has devastated parts of Africa. In Central and East Africa, the disease decimated many villages in the 1980s and 1990s leaving many orphaned children. Uganda and Congo were especially hard in it. With better health education and the use of condoms and anti-retrovirals, the incidence of new diagnosis of HIV infection has diminished. However, according to 2015 World Bank data [14], the prevalence of HIV infection in patients between age 15 and 49 remains 4.8% for Africa as a whole.
3. Culture of health: In some parts of the continent, modern medicine has only been available in the last few generations. In the past, healthcare was provided by natural healers and witch doctors. There is a tendency in rural areas or poor urban area for patients to tolerate disease and present late for medical care. Part of this is economic but part of it is cultural. Compliance may be challenged by poverty and the great distances rural patients have to travel to seek care. These challenges usually result in the first-time humanitarian doctor from the West being surprised by the advanced presentation of disease. For surgeons, this can

really challenge your skills. In some places, there may be a mistrust of healthcare providers. In general, medical practitioners are looked up to highly, and doctors are welcomed. You will be humbled by the multitudes of people waiting to be examined.

4. In the past, diets were healthy with little in meats and fats. This combined with active lifestyles was great for longevity. With modernization in most countries bringing fast food and a decrease in walking, obesity is on the rise in most African countries. This has been associated with increasing hypertension, dyslipidemia, and diabetes.
5. Rarely, the doctor's sex can affect their ability to treat patients. Most Africans will not mind being treated by a male or female doctor. However, in countries with a large Muslim population, it may be considered taboo for a man to touch a woman he is not married to. Again, usually, this usually does not apply to health-care, but it is always best to ask.

## **Absolute Requirements for Providing Medical Humanitarian Aid in Africa**

There have been medical missionaries in Africa since European colonization. The experience overall has been positive. But there have been problems. The movie, *The Constant Gardner*, chronicled the taking advantage of poor patients by the pharmaceutical industry. There have been cases of poorly trained but well-meaning physicians causing harm to Africans. As such, a few countries have started to restrict medical missions. But, in the vast majority of cases, doctors on humanitarian missions are welcomed with open arms.

Whenever performing medical humanitarian aid missions, it important to ensure you have:

1. Ground crew: It is critical to have a good ground team to help screen patients, obtain the necessary licenses and permits, accept medical equipment/supplies that you ship prior to your trip, and organize your trip for efficiency.
2. License and permits: The processing of licenses and permits can usually be outsourced to your ground crew. Most African countries will allow well-trained Western doctors to obtain a temporary medical license within a few weeks. However, be sure to investigate the specific country and be sure to verify the license yourself. Providing medical care without a license can create huge legal problems.
3. Know the infrastructure: In some parts of Africa (especially rural areas but also in some poor, urban areas), infrastructure can limit your humanitarian aid mission. The most problematic is unstable or nonexistent electricity. This may force you to improvise or use techniques you would not use routinely in the USA. In that case, make sure you receive some training in the new techniques before your trip.

4. **Know the equipment:** Before you leave for your mission in Africa, ensure you know what equipment you will be using. Consider shipping your equipment to your ground crew before the trip to avoid last-minute issues with customs. I had this happen once in Haiti and always advocate pre-shipping equipment and supplies. On your first day, be sure to inspect the equipment you will be using. For surgeons, ensure sterilization techniques are to your liking.
5. **Be a good neighbor:** In humanitarian aid missions, it is always important to be a good neighbor. Wherever you will be providing care in Africa, there are usually African doctors that service the area. These are usually very well-trained doctors, who are experienced in providing care in this setting and you can learn a lot from them. I always recommend introducing yourself to these doctors prior to the trip (via phone or email) and treating them like equal colleagues. Calling them for help with a complicated case on your last day can be looked upon as dumping. I also recommend asking them how they would like you to help them. Oftentimes, American mission teams will donate equipment and supplies that languish because the local doctors cannot use them or service them.
6. **Post-aid care:** My brother and I are both Texas physicians. He is an emergency room doc, and I am an ophthalmologist. We both do a lot of humanitarian work globally. I sometimes joke that when he travels on mission trips, he diagnoses diabetes and hypertension, and the patients are well controlled for 6 weeks until their medication run out, while I perform cataract surgery on mission trips and give the patients great vision for a lifetime. In reality, both types of care have pitfalls. In his defense, his patients are at least aware of diabetes, hypertension, and other disease after his visit. Provided they can get post-aid medications and care, he can truly extend their lives. There is pitfall with cataract surgery as well. Often, US cataract surgeons have to resort to using extracapsular cataract surgery (an older procedure no longer frequently performed in the USA) due to lack of reliable electricity and equipment. The transition to this procedure can be challenging, raising the risk of surgical complications. If an ophthalmologist does not have good post-op care plan or have a local doctor to manage complicated patients, the patient may end up losing their vision and be no better off than they were to start. Before you go, make sure you have a post-aid care plan.

## **How Doctors in the Developed Countries Can Help in Africa?**

In the past, physicians from developed countries provided care in Africa the same ways as has been done for centuries: This basically means making the voyage to Africa and spending 1–3 weeks providing free surgery and medical care the way they are accustomed in their home country. With direct medical care, unless you are working in a highly efficient system, you will bring a lot of happiness to the patients and general satisfaction to yourself, but your assistance is a small drop in a huge ocean of need.

There are more modern and effective ways for doctors to help in Africa. There really should be a shift to more educational and training-based humanitarian medical aid. We must focus on getting more well-trained African physicians, who can provide sustainable care for African patients 365 days a year. This is not to say that direct medical care is not worthwhile. The sweet spot is probably a combination of direct and indirect (training/education) medical care. Please find below examples that I have seen work very well in Africa:

1. **Sabbatical:** You can take sabbatical from practice and go volunteer in an area of need in Africa for 6 months to a few years. I know of several US ophthalmologists who have done this and have made a tremendous impact. In addition to doing surgical cases and running an eye hospital, they do a great job with training African ophthalmology residents. The pros of this include intensive hands on direct patient care, as well as training and administrative work. The con is the huge practice, family, and lifestyle sacrifice. This is truly the work of God.
2. **Training:** Instead of spending 2 weeks doing direct medical care, you can spend part or all of your time teaching at the local residency program. I have two colleagues, Drs. Jeff Pettey and Grace Sun, who are doing tremendous work in Tanzania on behalf of the Moran Eye Center in Utah and Cornell Weill Medical Center in New York, respectively. Pros: Training young docs, who will go on to help thousands of patients in their careers. Cons: You don't get to do the 50–200 cataract procedures that the typical US ophthalmologists do in 1–2-week trip to African. However, luckily in a few years, the docs you train can do them and much more on your behalf in a sustainable fashion.
3. **Partnership:** In this situation, a Western doctor(s) would team up with a doctor or group of docs in an area in Africa to help them advance their practices. This can be as simple as moral support, mentoring or, as involved, as donating equipment or training in advanced techniques. Pros: You will make an impact on hundreds of patients directly or indirectly. Cons: None, as this does not have to take a huge time commitment from practice.
4. **Leadership training:** Even though I have done many types of direct and indirect humanitarian medical aid, this is the area I work in currently. One of the biggest issues in Africa is leadership. I believe that most of Africa's healthcare problems stem from poor leadership preparation. This leadership deficiency trickles down from government to all institutions including healthcare delivery. If Africa had better leadership in healthcare, the abundance of disease and the deficiencies in healthcare delivery could probably be improved in 20 years, as was done in parts of Asia in the postcolonial period.

Remember, most African countries received their independence from the colonialists at about the same time as most Southeast Asian countries. In the late 1950s and early 1960s, the GDP of Southeast Asia and sub-Saharan African countries were roughly the same, but by the 1970s, Asia's GDP was rising and Africa's was falling [15]. One of the big differences is most Southeast Asian countries had progressive leaders, while the leaders in most African countries were corrupt and dictatorial.

With my mentor, Michael Brennan, M.D., I currently direct the first leadership development program (LDP) for the African Ophthalmology Council. Our goal is to take young African doctors with leadership potential from all over the continent and provide them with the training, tools, support, and mentoring to make a difference. Most Fortune 500 companies have had leadership training for decades. As a graduate of the American Academy of Ophthalmology's LDP, you could say I am a believer. For the American Academy of Ophthalmology, the LDP has been a great success story with many LDP graduates going on to become state society leaders and in two cases, American Academy of Ophthalmology Presidents: Drs. Russell Van Gelder and Keith Carter. In Africa, our hope is LDP grads will become ministers of health or more. Pros include working with young docs who will impact the healthcare of millions of Africans. The cons: No direct patient care. You have to be prepared for the long game with this option.

5. Start a clinic or health center: This requires a huge time and financial sacrifice and long-term commitment. An example is my friend, John Cooksey, MD, who started an eye clinic in Maua, Kenya, prior to running for office and serving as a US congressman. Another example is Dr. Geoff Tabin, who is world renown in global ophthalmology for cofounding the Himalayan Cataract Project and who does a lot of work in Nepal and Ethiopia. Geoff is an incredible person. I invited him this year to host our leadership program, and he told me he would be running 1 day late: he and his team needed an extra day to reach their goal of 1100 cataract cases in Ethiopia in 1 week. With an excuse like that, I was happy to move around our 2-day schedule around to accommodate him. Pros: A sustainable means for a Western doctor to provide direct medical care and indirect medical via African doctors and/or train African doctors at the clinic or health center. Cons: Huge sacrifice.

I hope you have found this introduction to humanitarian medical aid in Africa helpful. If you are looking for an adventure in a new frontier, Africa invites you.

#### Travel Tips for Physicians Providing Global Health in Africa

- **Malaria:** As in Southeast Asia, resistant Malaria is prevalent in some areas of the continent. It is recommended that you check with the US Centers for Disease Control (CDCS) for a risk assessment and follow up with a travel medicine specialist physician for the proper prophylaxis.
- **Corruption:** In many developing countries, government officials may be corrupt and may ask for a bribe to “grease the wheel” for the smallest perceived infractions. This could be as simple as a customs officer asking for a bribe to “clear” your luggage, an immigration officer stating you have used the wrong immigration form, or a police officer asking for a bribe to avoid a “speeding ticket.” In Tanzania, once, a police officer pulled over our car for speeding even though he did not have radar or any way of showing we were driving above the speed limit (we weren't). It is recommended that you have a knowledge of the laws of the country you are visiting, abide by the laws, and have the proper licensure and

permissions. If you are resistant to the bribe and show a knowledge of the rules, the official will usually back down.

- Shortage of physicians: The greatest need for physicians in Africa is in rural areas. There is a need in bigger cities, but often, it is not as acute. On the one hand, rural areas are where we can have the biggest impacts as physicians interested in global health. But, it also means that if you had an ailment or a medical emergency, it may be difficult to get the healthcare you need. It is recommended that you carry a first aid kit that includes supply of antibiotics, antiemetics, anti-diarrheal medications, etc. In some situations, it may be prudent to consider medical evacuation insurance. Of note, in all my travels in Africa, I have never needed to obtain the latter.
- HIV infection: New cases of HIV infection are gradually decreasing, but it is still prevalent in some parts of Africa. Generally, the prevalence is higher in the Eastern and Southern regions of the continent, but this is also where new infections are decreasing the fastest (Uganda is a great example). New infections are starting to increase in some regions in West and Northern Africa. It is recommended you consider taking a HIV prophylaxis regimen on your trip if you are travelling in a region where prevalence is high, your activities pose a risk (needle stick exposure), and the likelihood of good medical care is low. Of note, I have taken prophylaxis on a trip in rural Haiti but have never needed it in Africa since most of my work is in big cities.
- Fake pharmaceuticals: In some countries, the medications you purchase from pharmacies may be fake. This could mean they have a lower dose of active ingredients or a just blatantly adulterated. It is recommended you travel with a first aid kit including any medications you may need. If you must use a pharmacy, one of the local members of your team can usually recommend a reputable pharmacy.

## References

1. Bish J. Population growth in Africa: grasping the scale of the challenge. *The Guardian*. 11 Jan 2016.
2. "The World Bank in Africa" World Bank Databank. Available at: <http://www.worldbank.org/en/region/afr>. Accessed 2016.
3. Epstein EL, Kole R. *The language of African literature*. Trenton: Africa World Press; 1996. p. ix. ISBN 0-86543-534-0. Retrieved 23 Jun 2011.
4. United Nations Peacekeeping Forces. Available at: <http://www.un.org/en/peacekeeping/about/>. Accessed 2017.
5. "While Poverty in Africa has declined, number of poor has increased." The World Bank. Available at: <http://www.worldbank.org/en/region/afr/publication/poverty-rising-africa-poverty-report>. Accessed Mar 2016.
6. "World Bank databank: gross national income per capita 2015." Available at <http://databank.worldbank.org/data/download/GNIPC.pdf>.
7. "Africa Rising: a hopeful continent." *The Economist Special Report*. 2 Mar 2013. Available at: <https://www.economist.com/special-report/2013/03/02/a-hopeful-continent>.
8. "The twilight of the resource curse?" *The Economist. Special Report*. 10 Jan 2015.

9. The Economist: "African economic growth: the twilight of the resource curse". 8 Jan 2015. Available at: <https://www.economist.com/middle-east-and-africa/2015/01/08/the-twilight-of-the-resource-curse>.
10. The Economist: "Mobile phones are transforming Africa". 10 Dec 2016.
11. Jannah A. The United Nations Economic mission in Africa statement. Apr 2012.
12. Institute for Security Studies: Africa: Its Shakespeare vs Moliere in the African Union. 27 Nov 2015.
13. Munro-Hay S. Aksum: an African civilization of late antiquity. Edinburgh: Edinburgh University Press; 1991.
14. World Bank data bank: "Prevalence of HIV, total (% of population ages 15–49)" <https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS?view=chart>. 2015.
15. Morrell JA. Repository Library of Georgetown University, "Why has Asia Succeeded While Africa has not? A comparative analysis of economic growth: what factors have driven the divergence of economic performance between East/SE Asia and Sub-Saharan Africa?" Washington, DC 14 Apr 2006.



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- Ophthalmic Disaster Recovery Plan after Typhoon Haiyan, Philippines
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- Taught in Thailand, Japan, Philippines, Vietnam and China
- Co-founder and Program Director of the African Ophthalmology Council Leadership Development Program (LDP)



# Chapter 18

## Regional Spotlight: Eastern Mediterranean



**Ridwan Shabsigh**

*He who has health has hope, and he who has hope has everything – Arab Proverb*

### Introduction

The identification of the Eastern Mediterranean as a distinct geographic region has become more prevalent in recent literature. This characterization and identification is probably caused by common geopolitical factors and recent events. There is no universal agreement on the countries that should comprise the Eastern Mediterranean. However, for the purpose of this chapter and as a matter of operational definition, the following countries are included: Cyprus, Egypt, Greece, Israel, Lebanon, Libya, Palestine, Syria, and Turkey. The unique geographic location of the Eastern Mediterranean is at the junction of three continents, Europe, Asia, and Africa. Watching everyday news shows clearly and easily that these countries have common intertwining affairs affecting not only in this region but extending across the globe. Obviously, conflict, war, proxy wars, invasion, migration, refugees, destruction, involvement of world powers, uncertainty, and other major events have significant impact on individual and public health. This is exacerbated by the regions' substantial socioeconomic and health disparities at multiple levels. There is a huge need to understand this region for any person or organization contemplating health-care volunteering.

Understanding the Eastern Mediterranean as a “new” region can help in comprehending the shared regional challenges and, more importantly, healthcare efforts and volunteer work.

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Generally, the region has a rich history dating back several millennia before Christ. Numerous diverse ethnic groups exist, with diverse cultures, customs, food, music, and art. The three major religions are Islam, Christianity, and Judaism with many diverse sects and minorities. The region has a wealth of natural resources, including gas, oil, minerals, agriculture, sun energy, tourism, and others. Demographically the population is relatively young with a large segment of young people.

## Geography and the Countries

Here are the main highlights of the countries comprising the Eastern Mediterranean.

**Cyprus** This is an island country in the Eastern Mediterranean. The country has been divided for the past four decades in Greek and Turkish parts. It is part of the European Union and the eurozone. Ethnically, the population has mainly a Greek majority and a Turkish minority. The two main religions are Christianity and Islam. Languages include Greek and Turkish. The capital is Nicosia.

**Egypt** Egypt is a country in the northeastern corner of Africa at the junction of the two continents of Asia and Africa with coastlines on the Mediterranean and the Red Sea. It includes the important Suez Canal connecting the two aforementioned seas. The currency is the Egyptian pound. The majority of the population lives in the narrow region on the banks of the Nile River and its delta. It is the most populous country in the region. Ethnically, the majority of the population is Arab. The majority are Muslim with a large Christian Coptic minority. The official language is Arabic. The capital is Cairo.

**Greece** Greece is a country in the southeastern corner of Europe at the southern tip of the Balkan Peninsula, with many adjacent islands. It has a very rich history. It is part of the European Union, NATO, and the eurozone. Ethnically, the majority of the population is Greek with several other minorities. The majority are Christian Eastern Orthodox. The official language is Greek. The capital is Athens.

**Israel** Israel is on the eastern coast of the Mediterranean. It also has a small coastline on the Red Sea. To the east, it also has a coastline on the Dead Sea. Ethnically, the majority are Jews with an Arab minority. The major religion is Judaism followed by Islam and Christianity. The official languages are Hebrew and Arabic. The currency is the new shekel. The official capital is Jerusalem.

**Lebanon** Lebanon is on the eastern coast of the Mediterranean. It has a diverse topography ranging from a coastline to a parallel mountain chain and an inner plain. Ethnically, the majority are Arab with other diverse minorities. The two main religions are Christianity and Islam with several sects and minorities. The official languages are Arabic and French. The currency is the Lebanese pound. The official capital is Beirut.

**Libya** Libya is on the southern coast of the Mediterranean. It has a long coastline. The inner land forms part of the African Sahara. In recent years, the country has suffered from a civil war with divisions and unresolved conflict at the time of writing this chapter. Ethnically the majority is Arab. The main religion is Islam. The official language is Arabic. The currency is the Libyan dinar. The official capital is Tripoli, although currently there are several areas outside the government control.

**Palestine** Palestine is a state in the Eastern Mediterranean claiming the West Bank and Gaza Strip with East Jerusalem as its capital. The administrative center is currently in Ramallah in the West Bank. Most of the area claimed by the State of Palestine is occupied by Israel, pending a final peace agreement. The State of Palestine is recognized by 136 members of the United Nations (UN), and since 2012 it has a nonmember observer status at the UN. The majority of the population is Arab. The majority religion is Islam followed by Judaism and Christianity. The official language is Arabic. The currencies are the Egyptian pound, the new shekel, and the Jordanian dinar. The administrative center is currently in Ramallah in the West Bank.

**Syria** Syria is on the eastern coast of the Mediterranean. It has a diverse topography with a coastal plain, mountains, inner plains, rivers, and a desert. In the past 7 years, Syria has suffered from an armed conflict with a number of countries in the region and far beyond involved. A number of self-proclaimed entities emerged in Syria. It is currently considered the most violent country in the world due to war, which caused almost half a million deaths and displaced millions out of their homes, driving several million refugees to other countries. Ethnically the majority are Arabs with several diverse large and small minorities. The major religion is Islam followed by Christianity with several sects and other minority religions. The currency is the Syrian pound. The official language is Arabic. The official capital is Damascus.

**Turkey** Turkey is at the junction of Europe and Asia with territories in both. Its largest city, Istanbul, has a European part and an Asian part straddling the Bosphorus. The country is surrounded by sea from three sides, the Black Sea in the north, the Aegean Sea in the west, and the Mediterranean Sea in the south. The Bosphorus, the Marmara Sea, and the Dardanelles together form the Turkish Straits separating Europe from Asia and connecting the Mediterranean to the Black Sea. Ethnically the majority is Turkish with a large Kurdish minority in addition to diverse other minorities. The majority religion is Islam. The currency is the Turkish lira. The official language is Turkish. The capital is Ankara.

## Climate

Most areas in the Eastern Mediterranean experience a four-season climate. Summers are usually dry, warm to hot. Winters are rainy and cold. Springs and autumns are mild and pleasant. Generally, extreme temperatures are uncommon. The northern

parts of the Eastern Mediterranean are wetter, and the southern parts of the Eastern Mediterranean are drier. There are variations from country to country and sometimes in the same country.

## **Cultural, Religious, and Geopolitical Highlights**

The Eastern Mediterranean is well known for its rich diversity of cultures, religions, customs, music, food, languages, and dialects. Some of the earliest civilizations in recorded history originated in this region. Thousands of years ago, this region developed agriculture, irrigation systems, food preservation, industries, sciences, philosophy, organized societies, legal systems, alphabets, written language, and other innovations. The region's civilizations include the ancient Egyptians, the Phoenicians, the Hittites, the ancient Greek, the Romans and the Byzantines, the Muslim dynasties, and others. The world's major religions, Judaism, Christianity, and Islam, started in the Eastern Mediterranean. This rich history gave rise to today's extremely diverse cultures and shaped the psychology of the peoples of the Eastern Mediterranean and certainly influenced the politics and conflicts in this region. Socially and culturally, a spectrum may be found ranging from extreme conservatism to extreme liberalism and all shades in between. Geopolitically, the region has been involved in recent history in many major successive violent conflicts, including, to mention a few, the long Israeli-Palestinian conflict and the current civil wars in Syria and Libya, in addition to conflicts in parts of Egypt and Lebanon.

## **Health Issues**

The past several decades have seen the development, evolution, and growth of health systems and services in the region with improvements in the major health indicators such as life expectancy, infant mortality, reduction in communicable diseases, and others. However, major variabilities exist from country to country, in addition to continuing economic health disparities. In some rich areas of the region, modern medical facilities exist with highly capable staff and state-of-the-art equipment. In other areas with poverty, scarce low-quality services could be the most to hope for! The region could be a perfect case study to demonstrate that health is determined not only by clinical and biological factors but also to a great extent by social and economic factors. The major armed conflicts in the region with their widespread destruction of infrastructures and mobilization of masses of refugees have dealt a major blow and a significant setback to healthcare development. In some countries, such violent conflicts have created a true humanitarian and health crises with the most evident example of the civil war in Syria. The long civil war in Syria has witnessed the destruction of hospitals and clinics; the severe shortages of doctors, nurses, and specialists; and even the emergence of diseases that were thought to have vanished, such as polio and cholera.

## Medical Volunteering

There are many possibilities for medical volunteering in the Eastern Mediterranean with opportunities for job satisfaction and making a difference for populations in need. Opportunities exist for volunteering in healthcare facilities and projects in areas with poverty such as some parts of Lebanon, Egypt, Libya, and Palestine.

Medical volunteering in Syria may nowadays make a case of special interest. As mentioned above, the long multilateral civil war with the severe destruction and millions of refugees has created an unprecedented need for urgent health services. There are several organizations on all sides working on healthcare services inside Syria. In neighboring countries outside Syria, there are active healthcare efforts in the refugee camps, such as the several refugee camps in Southern Turkey along the Syrian border and the Zaatari refugee camp in Jordan. Many governmental organizations and NGOs operate inside and outside Syria. One of the most notable organizations with a large volunteering effort is the Syrian American Medical Society (SAMS). This remarkable effort has been mainly by large numbers of volunteering physicians, specialists, nurses, techs, pharmacists, supportive staff, operating clinics, and hospitals, providing a broad range of services to hundreds of thousands of patients. SAMS volunteers and facilities have sometimes operated under extreme conditions inside Syria, such as enduring air raids and bombing.

## Special Considerations and Preparation for Volunteering

Medical volunteering in the Eastern Mediterranean could be a very much self-fulfilling and job-satisfying experience. In addition, it could be very enriching in culture and world perspective. However, substantial preparation is recommended. Creating a plan and preparation checklist should be done by every individual going for medical volunteering. The preparation may include the following:

1. **Defining the goals:** It is very important to honestly define the goals of the volunteering involvement. Such goals may include one or more of helping the needy, doing humanitarian work, learning the socioeconomic determinants of health, enhancing life experience, and adding street smartness to book smartness, adventure, etc. Self-reflection and defining the goals will help in choosing the volunteering effort and shaping the experience.
2. **Defining the time and scope:** Short-term and long-term volunteering can be valuable and satisfactory. However, short-term volunteering might be more suitable in certain involvements and vice versa. The scope of involvement and work should also be well defined and planned.
3. **Choosing the opportunity:** There is a broad variety of opportunities ranging from clinics to hospitals to special projects. Projects might be new or ongoing. The served population may be pediatric, adult, geriatric, or mixed. The setting could be urban, rural, or a refugee camp. The country could be stable or in conflict.

There are legal, political, and cultural differences among the various countries of the region. Learning in detail about the volunteering opportunities will help in choosing the right one for the right person.

4. Deciding the tolerance of risk: Certain volunteering opportunities in certain countries in the region could be very safe. Other opportunities may have significant safety risks, such as healthcare clinics and hospitals in parts of Syria, Libya, and Palestine, with active armed conflict.
5. Logistical preparation: It is important to learn about the volunteer organizations, especially NGOs and their missions, strategies, and track records. Preparing travel documents, passport, visas, and permits is needed in addition to obtaining immunizations. Keeping up to date on travel advisories and announcements by governments, the United Nations, the World Health Organizations (WHO), and others will assure maximum preparation and reduce the chance for surprises.
6. Personal preparation: For the volunteer, it is important to plan and prepare for special personal medical needs, such as allergies, special diet requirements, medications, disabilities and limitations, and potential need for medical evacuation. Planning communications with family, friends, and others back home is very important as connectivity may not always be available. In some instances, redundant planning and creation of back up plans may be wise.
7. Additional tips and pearls: Reading in advance about the country or countries of planned volunteering activity may be very helpful. Learning the history and culture could help better understanding of contemporary situations. Learning a bit of the local language could be very beneficial. Planning to visit certain landmarks could generate enjoyable lasting memories.

## Summary

The Eastern Mediterranean is a special region with a unique geographic location, very rich history, very diverse cultures and religions, and many exciting opportunities for medical volunteering. It includes the countries of Cyprus, Egypt, Greece, Israel, Lebanon, Libya, Palestine, Syria, and Turkey. There is a broad range of healthcare availability, efficiency, quality, and affordability. Huge socioeconomic disparities exist with low quantity and low quality of services in parts of the region. In addition, violent conflicts have created health crises in certain countries of the region, most notably in Syria. Therefore, the need for medical volunteering in the region is substantial and the opportunities are abundant. Significant detailed preparation and planning is strongly recommended. Medical volunteering in the Eastern Mediterranean could be professionally very satisfying and culturally very enriching.



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Special Interests/Professional Duties:

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- Editor-in-chief of the Journal of Men's Health

Global Health Experience:

- Travels extensively to the Middle East to provide education and work with collaborators in the region

# Chapter 19

## Regional Spotlight: Caribbean



**Michel Dodard**

*It's easier to go to the mountains than to wait for the mountains to come to you.*

– Haitian proverb

*In Haitian Kreyol "tout moun se moun" Means Every Person is a Person*

### Overview

The Caribbean is characterized by geographic, political, and economic diversity, yet it is subject to easy stereotyping. Some do not see beyond the cruise liners, the beautiful beaches, and the images of gyrating carnival dancers and steel drum players. Lush rain forests, volcanoes, many rivers, and some deserts make up the landscape. The area is prone to cyclical natural disasters, such as hurricanes, and occasionally has been hit by major catastrophes such as volcanic eruptions in Martinique and Montserrat and, more recently, a devastating earthquake in Haiti which claimed 250,000 lives. Hurricanes are yearly events affecting some islands to various degrees of severity.

The Caribbean is densely populated in urban centers with a heavy concentration in the capitals and coastal cities, as a result of the colonial economy focused on maritime commerce with Europe. The area has been strategically important from the time of Christopher Columbus to present. The American hegemony is evidenced by the acquisition of Puerto Rico as an unincorporated territory after the Spanish-American War and by the twentieth-century occupations of Haiti and the Dominican Republic.

The early history was defined by the prompt extermination of the native populations, the relentless exploitation of the island resources including gold, sugar, coffee, and spices, and an economy supported by the massive importation of

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223



African slaves. At one point the number of slaves brought to the West Indies exceeded the total number brought to the American colonies. The major political event of the nineteenth century was undoubtedly the Haitian Revolution which began in 1791 and ended in 1804 with the establishment of the first independent Black Republic, the second independent country in the Americas. This earth-shaking event sent historical ripples in the Caribbean fostering different movements toward the abolition of slavery. Neither the younger US nor the Spanish colonies of Latin America escaped the effects of this black slave revolution.

In the twentieth century, the Cuban Revolution had important echoes in South America and even Africa. It spawned major accomplishments in education, health, and sports, but the regime, still in power since 1959, has a poor record on human rights.

The Caribbean economy and politics are currently characterized by the dual importance of tourism and migration toward the old colonial powers and to the northern neighbors. The value placed on education, abroad and locally, has produced an accelerated modernization of the service industry. The development of the internet and the frequent exchanges with Europe and North America have prepared the younger generation of Caribbean professionals for new economic and entrepreneurial opportunities.

## **Geography, Flora, and Fauna**

There is an apocryphal tale about Caribbean topography popular among Haitians. When asked by Queen Isabella of Spain who had financed his trip, to describe the island of Hispaniola, Christopher Columbus took a piece of paper/crumbled it and tossed it on the table as a dramatic description of the mountainous landscape of the island saying: "This is Hispaniola." Indeed Haiti, renamed Hispaniola by Christopher Columbus, means "country of mountains" in Arawak, an indigenous language in the region.

Seven thousand islands and islets occupy the Caribbean Basin southward from the southern tip of Florida to the coast of Venezuela comprising 25 autonomous territories including sovereign nations, some having gained their independence in the last 30 years, and departments of France. The islands share a world-known reputation for stunning natural beauty, a rich flora, both native and imported over six centuries. Many parts of the islands are still pristine attracting adventurous ecotourists, seeking unusual excursions. Unfortunately, ecologic damage has also occurred to the forests and the coral reefs. Vigorous efforts are underway to protect this rich flora, and most islands set aside virgin parks like El Yunque in Puerto Rico. Cuba, now open to more visitors, is well known for its incredibly diverse floral species along with unique birds, native only to the islands. A public policy establishing a vigilant stewardship of nature has resulted in ecologic treasure, relatively unspoiled by tourism.

## Populations and Languages

Close to 44 million people, 0.058% of the world population, live in this archipelago. Largely black and Hispanic with some indigenous people, the population in different islands is a reflection of their particular history. The Caribbean is the original melting pot, accommodating waves of involuntary migrants like Africans, East Indians indentured servants, and Chinese workers. West Indians are often amused at comments from some visitors who utter such as, “You don’t look Haitian, or Cuban, or Puerto Rican.” Very frequently family pictures of West Indians will display a spectrum showing various ethnic ancestries. It is useful to know that 30% of the population in Trinidad and Tobago is East Indian in origin or that most of the population of Cuba is black.

The languages spoken in the Caribbean mirror the histories of individual island nations and are dominated by Spanish, English, French, and Dutch. In some islands like Grenada or Dominica, along with the official English language, one will notice street names, culinary recipes, and business logos written in French, a remnant of the previous occupying colonial power. In addition, several forms of patois mixing English, French, with African syntax and vocabulary exist in the Caribbean. The strongest of the Caribbean creole is Haitian Kreyol, which after centuries of marginalization is now an official written language.

## Customs, Music, Arts

Caribbean customs vary as well from one island to another. One can have afternoon tea in Bermuda and enjoy the finest French pastry in Martinique or attend a cricket match in Trinidad. In some countries the African heritage is quite obvious and valued whereas in others the cultural trends have been aligned to the former colonial powers. However, common threads are observed in Caribbean culture. The proverbial friendship, hospitality, and easy-going lifestyle are displayed throughout the area. Generally socially conservative, West Indians tend to be discrete in their clothing, language, and manners.

The influence of North American and European cultures has grown tremendously since World War II fueled by migration and establishment of a Caribbean diaspora. Dress codes are now more relaxed sometimes to the dismay of more traditional West Indians. Usually male dominated, Caribbean society is moving toward a more egalitarian model as evidenced by the prominence of woman writers, artists, and politicians and open discussion of LGBT rights. Another common link among the islands is the distinctive music, which is ambient to Caribbean life with different genres such as Haitian kompa, French island zouk, Dominican meringue, Cuban mambo and salsa, and Jamaican reggae which have gained worldwide appreciation.

Caribbean culture comes alive with the celebration of Carnival. This celebration in Trinidad and Tobago is elaborately lavish with displays of intricate costumes.

This huge party bringing all social classes in the street for days is the ultimate social equalizer when usual conservative West Indians let their African roots prevail. Literature and arts are flourishing in the Caribbean represented by world famous writers like V. S. Naipaul, Derek Wilcox, Jacques Roumain, Alejo Carpentier, and Guillermo Cabrera Infante. Haiti boasts an unusual concentration of painters, sculptors, and craftsmen exhibiting their work in world museums and galleries. Costume design in Trinidad has elevated this craft to the level of exceptional art.

## Religions

Caribbean populations are deeply religious and spiritual people. Catholicism is the declared religion of 60% of West Indians, followed by Protestant churches at 30%. These two major religions form the largest segments of the religious landscape, but local new religions such as Rastafarianism from Jamaica are also gaining popularity across the region. The Caribbean is also home to some of the oldest Jewish synagogues in America as well as large Hindu temples. Recently, Islam is also becoming more prevalent. All through the Caribbean, Afro-Caribbean religions are coexisting with religions inherited from the colonial masters with various degrees of visibility and acceptance. Haitian Vodou practitioners persecuted in the past are now enjoying official political recognition and representation. Santeria (Regla de Ocha, Lukumi) is widely practiced in Cuba and in Cuban communities in the United States. Oresha Shango is found in Trinidad and Tobago. These constitute the unbroken link of people of the Caribbean with their African roots, combined with the more established religions such as Catholicism. Hollywood caricatures have in the past demonized these African and divination rituals. This has been generally replaced by increasing curiosity, interest, and even commercialization for tourists.

## Food

The Caribbean can be described as a “foodie paradise.” From sophisticated French cuisine in St. Lucia and Martinique to the fragrant curry-laced, Indian-inspired cuisine of Trinidad, all the gastronomic tastes of the world can be satisfied. Chinese immigrants have added their culinary skills and created unique fusion styles with African-rooted meals. Farm-to-table restaurants have always been the norm, and West Indians pride themselves as great home cooks. Each island claims to produce the best rum and tropical cocktails in the world. Seafood, rice and beans, and root vegetables constitute the staples although American fast food is gaining popularity. Visitors and humanitarian workers should remember that food can be meager in some rural areas, and food insecurity remains a problem in some parts of Haiti and

the Dominican Republic. This situation can quickly become critical after the passage of hurricanes destroying crops and livestock.

## **Healthcare/Humanitarian Help in the Caribbean**

Generally medical care is acceptable by American standards, and most countries have a pool of expatriate and/or US or European trained health professionals who speak English. Depending on the island, access to university-level care with modern technology is generally possible. Some areas of the poorest islands have spotty and deficient case and ambulance and emergency care not always reliable.

The general health of Caribbean people across the board is indeed very good with the health parameters of 30 countries meeting or exceeding American parameters (infant mortality, vaccination rates, maternal care).

Because of generational changes in diet, obesity and subsequent diabetes are on the rise. Salt was the only means of conserving meats and fish in colonial times, so local taste favors salty foods. Spices and hot peppers are liberally used, and sugar-producing Caribbean countries have acquired the taste for sweet treats. Infectious diseases are not under control in countries with poor public health infrastructure. Malaria, typhoid fever, tuberculosis and AIDS, leptospirosis, filariasis, and dengue fever are not rare findings along with other mosquito-borne diseases. In recent years, some countries in the Caribbean Basin have seen their first cases of chikungunya and Zika. For reasons not clear, Puerto Rico is still detecting many cases of Zika and subsequent congenital and neonatal complications.

Western medical care coexists with herbal medicine in all the islands. Teas and infusions are part of household remedies. A strong oral tradition has allowed this medicinal knowledge to survive. There is now an effort to record, analyze, and rate scientifically the merits of these alternative approaches. This is especially true for Haiti where in some remote areas the alternative/traditional medicine is the only one consistently available and generally trusted better than Western drugs which are deemed too strong.

Cuba does not accept or need medical volunteers as it frequently provides medical assistance to other countries. Since the lifting of the embargo, volunteers in education, agriculture, and archaeology have been welcome. The ecologic environment and policies have attracted a new wave of students and academics. In fact, the health parameters in Cuba are among the best in the world, and there is a surplus of health professionals who are exported to many countries from Africa to South America.

Volunteerism and humanitarian efforts are usually directed toward Haiti and the Dominican Republic and less frequently to other islands. A sensible approach is to contact the ministries of health as well as established health nongovernmental organizations to gain solid knowledge of the true needs of the population. After natural disasters, relief missions although well intentioned can become part of the problems. Volunteers can provide temporary needed help, but their lodging, feeding, and travel

requirements can burden health systems not prepared to serve their own populations. It is imperative that such help be planned and offered in close collaboration with the local health workers. They will ultimately be responsible to care for their patients.

## **Before You Leave**

1. Check the weather report. Usually average temperatures are in the mid-80s. The two seasons are rainy and nonrainy. During hurricane seasons, follow the daily updates.
2. Visas are not necessary for American travelers except for Cuba.
3. Take the necessary immunizations. Updated requirements can be obtained by accessing the CDC travel page with advisories for specific islands.
4. Follow strict mosquito bite precautions even if the mosquito-borne “disease of the year” is no longer in the headlines.
5. Do pack light but remember that beach wear is not appropriate everywhere.
6. Leave the usual stereotypes at home, and prepare to enjoy discovering natural wonders and meeting very friendly people.

### **Global Health Issues**

1. The region has a low index of development and wealth which negatively impact investment in population health.
2. The health facilities and infrastructures are limited and fragile due to the region’s propensity to natural disasters, occurring almost on a yearly basis.
3. There is a high relative prevalence of HIV, mosquito-borne diseases, and an increasing burden of diabetes and cardiovascular diseases.
4. The health workforce is and decreasing due to low salaries and a high emigration index.

These regional characteristics do not apply to all countries of the area and even vary in the same country depending on the circumstances. A recent example is the 2017 hurricane season that has severely affected several countries of the Caribbean and caused lasting damage to their economies and worsen their brain drains. It behooves any health volunteers to gather the latest information on the economic situation, the political climate, and the health conditions specific to the country they intend to visit.

## **Bibliography**

1. Murrell N. Afro-Caribbean religions an introduction to their historical, cultural, and sacred traditions. Philadelphia: Temple University Press; 2010.
2. Palmie S, Serrano F. The Caribbean: a history of the region and its people. Chicago: University of Chicago Press; 2011.

3. William Kack C, Reed GA. The curious case of Cuba. *Am J Public Health*. 2012;102(8):ed3–32.
4. Caribbean Food and cuisine- Caribbean Traveler. Available at: [www.caribbeantraveler.com/food.html](http://www.caribbeantraveler.com/food.html).
5. Meeks B, Lindahl F, editors. *New Caribbean thought- a reader*. Kingston: University of the West Indies Press; 2001.
6. Infectious diseases in Latin America and the Caribbean. <https://www.cdc.gov/end/article/2/1/96-0109>.
7. Fournier AM, Dodard M. The health care delivering crisis in Haiti. *Fam Med*. 1997;29(9):666–9.
8. Dodard M, Vulcain A, Fournier A. Project medishare- a volunteer progress in international health at the University of Miami. *Acad Med*. 2000;75(4):397–401.



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- Intercultural medicine
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- Publications include articles and book chapters on pulmonary nodules, insomnia and tuberculosis and global health
- Two-term member of the Board of Directors of the Global Health Educational Consortium
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Global Health Experience:

- Principle Investigator on University of Mimi Haiti Project, which promoted the Specialty of Family Medicine in Haiti
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# Chapter 20

## Cultural Considerations for Healthcare Treatment of Latinos in the United States



**Hector Rasgado-Flores, Yovanna Pomarico, Cecilia P. Rasgado, and Patricia Sumoza**

*If we did the things we are capable of, we would astound ourselves.* – Thomas Edison

Diversity among Hispanics or Latinos should be considered when treating patients from different cultural backgrounds. People have different beliefs about health, and most of these beliefs stem from integrated patterns of human experiences that may include personal values, religion, ethnicity, language, and customs which leads this argument to the importance of cultural considerations. These considerations play such an important role today in healthcare that academic institutions have integrated into their training programs courses related to cultural competency. Understanding the difference between the terms “Hispanics and Latinos,” the cultures, races, and nationalities that comprise being part of these two classifications can provide basic knowledge for healthcare providers when treating people of Latin-American origin.

### Hispanics or Latinos?

Analysis and recommendations for the medical treatment of Hispanics/Latinos in the United States require the basic definition of the differences and similarities between these two adjectives. This is particularly pertinent because there is considerable confusion in the United States regarding their use to identify people from

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Latin America. Latinos are composed of many races, ethnicities, cultures, and belief systems. Many believe that a Latino can be placed in a one-size-fits-all culture or ethnic group and that is far from the truth. Instead, there are variations of races, cultures, and ethnicities when it comes to being a Latino [1].

In the United States, the term “Hispanic” has traditionally been more widely used than “Latino” to identify people of Latin-American origin. However, the former term is problematic because it is imprecise and misleading and has its roots on racist principles. “Hispanic” implies that the people acknowledged as such have original ties to Spain (e.g., language, culture, and race). During 300 years of European colonialism in the Americas (1500s–1800s), the term Hispanic was used to identify and separate individuals who had close ties to Spain. This included the language, economic status, mannerisms, style of dress, food consumed, type of labor performed, and, yes, skin color. Indigenous people were exploited by the Europeans and their cultures destroyed and replaced with the assumed “superior” European culture. During the colonial period, there was considerable interracial mixing resulting in a variety of races populating Latin America ranging from the purely European, different levels of interracial mixing and the purely indigenous. At this point in history, the use of the term Hispanic evolved to represent the triumph of the race and culture from Spain over the indigenous ones. An additional problem with the use of the adjective Hispanic to refer to the people from Latin America is the fact that, although most countries in this part of the world were conquered by Spain, it fails to describe the population of the largest country in Latin America, Brazil, which was colonized by Portugal.

An additional reason for the inappropriateness of the use of the term Hispanic is a strong resentment that the large majority of the population in Latin-America has towards Spain because of the imperialistic destruction of their cultures, rampages of their riches and holocaust of indigenous populations. Not surprisingly, a very clear example of how misleading the term Hispanic is consists on the fact that in their majority, Latin Americans prefer to be called Latinos rather than Hispanics. Furthermore, the term “Latino” has much wider implications than “Hispanic”, it entails, for example, that the people identified as “Latino” have ties to a Latin heritage. This includes almost all countries in Latin America including Brazil but excludes English and Dutch speaking protectorates and countries. Therefore, the identifier “Latino” embraces a rich spectrum of cultural, political, and socio-economic characteristics that are unified by a common thread: a similar traumatic national origination, resentment to the countries that created these nations, and a shared pride of being Latin-American. This pride originates on the historic fact that these nations have been and are currently being built against the dominance of past and present oppressors.

In sum, “Latino” is a more political and culturally correct term than “Hispanic.” It refers to people from Latin America of varied ethnicities, races, and cultures. Latinos share a history of having being conquered by Europeans and the aspiration and pride of building strong independent nations.

## **Latinos in the United States**

Latinos constitute the fastest-growing population group in the United States. The census of 2012 shows a figure close to 20% of the total in population. It is expected that by 2050, this group will constitute 82% of the increase population becoming



the largest “minority” group and comprising 30% of the total US population. Medical treatment of Latinos in the United States poses numerous cultural and socioeconomic challenges. The sole purpose of this work is to contribute to the understanding of these challenges and to propose some practical means to face them.

## **Cultural Differences Within Latinos**

Very likely, the most prevalent mistake physicians make in dealing with Latinos is to assume they all share a homogeneous culture. This is too simplistic and greatly incorrect. As mentioned above, Latino culture encompasses a very wide range of historical and socioeconomic backgrounds. Some countries like Mexico and Central American countries represent various degrees of intermixing between purely indigenous to purely European. In contrast, other countries like Argentina, where indigenous populations were either annihilated or isolated, possess a highly European background. Therefore, to be appropriately culturally sensitive to a Latino patient, the physician must identify the idiosyncrasies of the culture of the patient which could vary greatly among Latino patients. Within each Latino culture, the acceptance and practice of cultural values vary widely. These disparities have an enormous impact on the Latino patient’s interpretation and expression of his/her symptoms and expectations not only toward the physician but to a country’s entire healthcare system. These expectations are of course critical because they can play a very significant role in the trust for the physician, therapy and medication compliance, and the healing process of the patient.

## **The Language Barrier**

As mentioned above, although the Spanish language predominates in Latin America, in several Latin-American countries, other languages and dialects are spoken either in the entire country or at specific regions of the country. This includes native Indian languages such as Quechua, Mayan, Aymara, and Guarani, the Creole-based Garifuna spoken in coastal Honduras, and of course, Portuguese.

Interestingly, within a given country like Mexico, Colombia, or Venezuela, each region may have their own words, idioms, and accents which may vary to such an extent that verbal communication within populations of these regions can be extremely difficult. Subsequently, it is easy to understand that this diversity of languages creates challenges for Latin physicians working in Latin countries treating Latin patients. Needless to say, this challenge can be much greater for US physicians treating Latin patients in the United States.

Language barriers can be a critical impediment to the successful diagnosis and treatment of a disease. A physician should be aware of the preferred language of the patient. If possible, the physician should learn a greeting in his/her patient’s pre-

ferred language. This will establish immediate rapport and facilitate the patient-physician interaction. If necessary, the physician should arrange for a translator to be present during the visit. The health practitioner should utilize drawings, photographs, and models as needed, especially if the patient appears to be unable to read English.

A professional medical translator should be familiar with some terms used by the Latinos. Some of these terms are very peculiar. Translation of these terms requires deep knowledge of the culture. Some very common ones are, for example:

Mal de brinco/mal de conejo: tetanus

Purgación: gonorrea

Crestas de gallo: genital warts

Pegar una enfermedad: to infect someone

Popo: stool

Mal de mina: tuberculosis

Vasca: vomit

Mal de minero: hookworm

Bichos en el estómago: intestinal parasites

Orina dulce: diabetes

Estar empachado: Difficulty in digesting some foods like beans or peas.

Apretamiento de la pechera: asthma

Mala cama: miscarriage

Estar en cinta: to be pregnant

Aliviarse: to give birth

Salpullido: diaper rash

A useful comprehensive English-Spanish dictionary of health-related terms has been developed by the University of California in partnership with the California Department of Health Services, Office of Binational Border Health (COBBH). This publication is accessible through the COBBH web site at <http://www.dhs.cahwnet.gov/ps/dcdc/COBBH/> and the CMHI web site at <http://www.ucop.edu/cprc/cmhi.html>.

## **The Influence of Socioeconomic Differences**

A sad legacy of colonialism in Latin America is the fact that social-class differences influence a person's behavior, culture, and life philosophy to an even a greater extent than language or ethnic background. Lower-income Latinos are mainly concerned about getting food on the table for the family. Upper- and middle-income Latinos are concerned with education for their children and maintaining a lifestyle and family life. Again, a colonialist legacy is a prevalent discrimination by the high socioeconomic classes against the low socioeconomic classes. A consequence of this is that the levels of education, kind of food, and level of healthcare vary greatly within these classes.

## Patterns of Communication

When facing language barriers during interactions between a patient and his/her physician possessing different cultures, it is important to realize that unspoken cross-cultural communication can be very relevant for efficient communication. For the case of an Anglo-Saxon physician treating Latino patients or vice versa, it is pertinent to consider that cross-cultural communication can be heavily influenced by the level of contact that each of their cultures utilizes. For example, communication among Latinos leans toward a high-contact level. This tends to be especially true for low-income members of this ethnic group. High-contact communication includes the use of casual physical touch, facial expressions, subtle physical movements, and hand maneuvering. This form of communication can be so relevant for a Latino patient that it often leans toward his/her expectation that it should substantially help the physician understand the patient's feelings, fears, expectations, and thoughts. In this sense, for the patient, this communication is expected to substantially complement and enrich the use of spoken language.

In contrast, in general, communication among Anglo-Saxons tends to be of a lower-contact level than the one found in the Latino culture. For Anglo-Saxons, communication relies more heavily on the precise use of spoken language than it does for Latinos. Casual physical touch tends to be avoided between Anglo-Saxons as it is only reserved for romantic or familial interactions. Likewise, hand movement and facial expressions play a much lesser role for communication in Anglo-Saxon cultures than it does between Latinos.

A very likely contributing factor for the different roles that at least facial expressions and hand maneuvering play in the communication of individuals of different cultures lies in the very recent discovery [2] that these differences are not learned by visualization of cultural peers but are instead intrinsic to the expression of a given spoken language. This surprising and fascinating discovery resulted from analyzing and quantifying facial expressions of native Turkish and English speakers which were either normal sighted or congenital blind. The analysis demonstrated clear differences between the facial expressions and hand maneuvering between native Turkish and English speakers. These differences, however, were not learned by watching other gesture but were an intrinsic characteristic of the spoken language.

## The Latino “No”

For Latinos in general, well-being and happiness are important pillars of their culture. Thus, the apparent creation of a good impression during a communication is critical to secure a good relationship. For this reason, politeness easily overrules precision. The word “no,” for example, is used with a high level of innuendo. For Latinos it can be rude to say no to a person; they take great care in softening or even hiding a negative answer to an invitation, the request for a favor, or even a question.

They soften the negative answer as much as possible while at the same time avoid committing to a positive answer. Understandably, this can be very frustrating for a communicator from a different culture that does not understand the context of the Latino “no.” Physicians are very highly regarded by Latinos. Consequently, it would be unlikely that a Latino patient would say no to a physician request. However, the health provider should be aware of the possible ambiguity of the Latino patient answers.

## **The Latino “Yes”**

Just as saying “no” can be impolite for Latinos, the word “yes” can be so polite that it can be used when in fact the real message to be conveyed is a “no.” To Latinos, nodding or saying “yes” can mean “I am listening and trying to understand you” or “I am looking at you and listening, but I do not understand what you are saying, but I am trying to be polite.” The cultural innuendo in the use of the word yes by Latino patients can lead to significant miscommunication with healthcare professionals.

## **Differences in the Approaches to Healthcare Among Latinos**

A corollary of the disparities in economic resources, levels of education and social discrimination between different Latino groups, is the differences in their approaches and accessibility to healthcare. There are two main kinds of healthcare providers used by Latinos: the folk healers or curanderos and the western physicians. The choice in the use of these health providers is influenced by two main factors: the seriousness of the symptoms and the cost of the consultation and treatment. For high-income, well-educated Latinos, the choice consists of mostly western allopathic medicine enriched by the usage of traditional therapies including herbs, ointments, and infusions. For low-income, low-education Latinos, the choice between curanderos and physicians lies in the seriousness of the symptoms and the price of treatment. In general, curanderos and folk treatments are used as a first choice. However, the care of a physician is sought if symptoms persist or worsen and in emergency situations. Both for low-income and high-income Latinos, there are two options for treatment by physicians: a government-sponsored physician or a private physician. At least for the case of Mexico, government-sponsored medical treatment is, in general, good and inexpensive but may require in some cases a long wait for treatment especially if a specialist is needed. Private physicians offer immediate, sophisticated, and specialized treatments, but the cost of the consultations and therapies is high. Consequently, for low-income Latinos, the care of private medical treatment is out of reach (Table 20.1).

**Table 20.1** Examples of symptoms that are considered by Latinos in the State of Michoacan in Mexico as nonserious, moderately serious, and grave

Nonserious	Moderately serious	Grave
Headache	Body aches	Swollen throat glands
Sticky eye discharge	Constipation	Difficulty breathing
Runny nose	Aching in the bones	Vomiting
Pimples on the skin	Diarrhea	Unconsciousness
Sleeplessness	Arching in back	High fever
Motion sickness	Bloody stool	Heavy bleeding
Stomachache	Coughing up phlegm	Pains in the heart

Modified from Young and Garro [3]

## The Family Unit in Latino Communities

The definition of families in Latino populations might be conflicting with the cultural perception of the family unit among Anglo-Saxons. Traditionally, Latinos usually include their parents, siblings, grandparents, aunts, uncles, cousins, close friends, and even godparents as part of their immediate family. It is also common for members of the community and close friends to be considered as family members. Children might refer to an adult as an aunt or uncle although not necessarily blood-related. This can present challenges at the time of taking family history. Family involvement is critical to the healthcare of the patient. Latino patients frequently consult with other family members and often ask them to come along to medical or treatment appointments. The intimate confines of extended families, close-knit communities, and traditional patriarchal networks are mediated by respect; and respect implies a mutual and reciprocal deferential behavior toward others based on age, sex, social position, economic status, and authority. Older adults expect respect from younger men and women, adults from children, teachers from students, employers from employees, and so on.

The importance of family in decision-making processes stems from the intrinsic unity these populations have. The concept of independence and detachment from the family unit occurs later in life for Latino children, especially Latino females when compared with Anglo-Saxon families. The concept of family union for Latinos is so strong at times that it is challenging to convince parents that their child should leave home for better educational opportunities. Leaving home separates the family and makes it hard for students to adapt; so many families prefer to send their kids to schools within driving distance. This might provide some insight as to how important the medical decision-making process is for a family unit. These cultural conditions can represent significant challenges with respect to autonomy and confidentiality. It is imperative that consent to disclose to family members is stated before the family is briefed. On some occasions family members might request the nondisclosure of a malignant diagnosis to a family member especially if the patient is very young or very old. Under these circumstances, it will be important

to establish with the head of the family the pattern of communication that has been established between family members in order for the patients to trust their providers. Having a trusting and truthful relationship between the care provider and the patient is not only going to ensure an excellent rapport but a lower likelihood of nondisclosure situations on behalf of the patient. It is common to have the whole family present during the consultation and at the time of discussion of treatment options. The care provider should embrace these relationships; they will determine the rapport the physician has with the patient and the likelihood of the patient's adherence to the physician's recommendations.

## **Similarities in the Approaches to Healthcare Among Latinos**

In the case of Latinos, hybrid cultural experiences are the rule because there is a mixing of nationalities and generational differences within the American population. However, common themes are identified and could be called unstated rules that impact the way in which individuals perceive, seek, and receive healthcare services. Those common themes are (1) personal relationships, (2) trust, (3) family, (4) spirit, and (5) respect [4].

Because Latinos tend to put a strong emphasis on the importance of personal relationships, Latinos heavily depend on community-based organizations and clinics for their healthcare needs, and they expect providers to be warm, friendly, and personal to take an active interest in the patient's life. Furthermore, providers are expected to personally greet and inquire about his or her well-being and the well-being of their family.

As more time is spent with the patient and the provider can demonstrate respect and appreciation to patient's culture and personal interests, the provider gains the patient's trust and confidence; when there is trust, Latinos will value the time spent speaking with their healthcare provider about the course of action; and trust means to a Latino patient that provider will have their best interest at heart.

## **Intervention Strategies for Treatment of Latino Patients by US Health Practitioners**

US physicians are routinely exposed to patients from very different linguistic and cultural backgrounds. Cross-cultural differences can have a very substantial impact on healthcare outcomes. Traditions, culture, language, and beliefs can significantly affect the outcome of disease and treatment. To attain the most effective, humane, and cost-effective treatment, the health practitioner must take into consideration the cultural background of the patient. The best healthcare outcome is achieved when

the health practitioner does not have a condescending attitude toward the patient and the cultural backgrounds of both parties work in synchrony.

Some suggestions to treat Latino patients in a cross-cultural setting are as follows [5–8]:

- Recognize and understand your own culture and the limitations that this conveys. This is essential to establish cross-cultural competence and best practices.
- Be culturally sensitive. Learn about the traditions, health and illness beliefs, rules of interaction, family and cultural roles, and practices of the Latino population. Take a few seconds to smile and focus on the patient before proceeding with the examination.
- Realize that for Latino families, important decisions are not made individually but as a group. If the family interacts with you, shake hands and address first the male patient or caregiver. Demonstrate interest in understanding the family roles and personalities.
- Be aware of nonverbal communications. Latino culture, especially for low-income groups, relies on high-contact communication. Utilize photographs, drawings, and models as necessary especially if someone appears to be unable to read.
- Be sensitive and rely on nonverbal behaviors. Pay attention to facial expressions of the patient. In many instances, these expressions convey much more relevant information than words. Remember the complexities of the Latino “yes” and “no.”
- Avoid neutral and negative facial expressions. Show a friendly face and a good eye contact as it conveys interest and concern. Keep the arms relaxed at the sides rather than crossed to express openness.
- Demonstrate interest in the patient’s beliefs about the etiology of his/her sickness and possible treatments. Do not be condescending; respect the patient’s beliefs.
- Discuss and reach an agreement with the patient about a treatment plan that is at the same time effective and acceptable to the patient’s belief system. If needed, work together with the curandero or healer; do not antagonize.

Developing best practices in cross-cultural interactions between healthcare professionals and patients requires commitment and training, but it leads to better patient satisfaction and health outcomes.

#### *Health Issues to Consider*

1. There is a high prevalence of metabolic diseases such as diabetes and obesity. In many cases, diabetes may neither be detected nor treated properly leading to a very high rate of amputations [9–11].
2. Although the government provides free or low-cost health services, gaining access to these services can be a very lengthy process.
3. It is very likely that patients would not seek health services as a preventive measure and may only use them when the disease is very advanced.

4. Patients may self-administer a large variety of house remedies including herbal infusions.
5. Patients may have access to numerous drugs including antibiotics which are only available in the United States with prescriptions.

## References

1. Gonzalez-Barrera A, Lopez MH. Is being Hispanic a matter of race, ethnicity or both? Pew Research Center. 2015. Retrieved from <http://www.pewresearch.org/fact-tank/2015/06/15/is-being-hispanic-a-matter-of-race-ethnicity-or-both/>.
2. Özçaliskan S, Lucero C, Goldin-Meadow S. Is seeing gesture necessary to gesture like a native speaker? *Psychol Sci*. 2016. OnlineFirst, March 15, 2016 as <https://doi.org/10.1177/0956797616629931>.
3. Young JC, Garro LC. *Medical choice in a Mexican village*. Prospect Heights: Waveland Press; 1994.
4. Flores V. Cultural elements in treating Hispanic/Latino populations. In: *Caribbean Basin & Hispanic Unifying science, education, and services to transform lives*; 2011. <http://attcnetwork.org/learn/education/documents/Cultural.Elements.in.Treating.Hispanic.Latino.Populations.pdf>.
5. Andrews M, Boyle J. *Transcultural concepts in nursing care*. Philadelphia: Lippincott, Williams, & Wilkins; 1999.
6. Early MB. *Mental health concepts and techniques for the occupational therapy assistant*. 3rd ed. Baltimore: Lippincott, Williams, & Wilkins; 2000.
7. Royeen M, Crabtree JL. *Culture in rehabilitation: from competency to proficiency*. New Jersey: Pearson Education, Inc.; 2006.
8. Zuniga ME. Families with Latino Roots. In: Lynch EW, Hanson MJ, editors. *Developing cross-cultural competence*. 2nd ed. Baltimore: P. H. Brooks; 1998.
9. American Cancer Society Report. Report: cancer now leading cause of death among Hispanic Americans Sept. 2012.
10. Carrion AF, Ghanta R, Carrasquillo O, Martin P. Chronic liver disease in the Hispanic population of the United States. *Clin Gastroenterol Hepatol*. 2011;9(10):834–41.
11. The most common causes of mortality among Hispanics in the United States. Centers for Disease Control and Prevention's "Health, United States, 2002 With Chartbook on Trends in the Health of Americans."





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- Promoter of the education of Latinos in the United States
- Developed the INSPIRE program at the Rosalind Franklin University which aims to bring underrepresented Latinex students to higher education
- Chair of the International Physiology Committee of the American Physiological Society
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- Chair of the Research Council of the American Heart Association

Global Health Experience:

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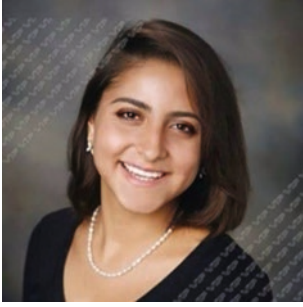
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# Chapter 21

## Similarities Greater Than Differences: A Doctor's Perspective



**Ricardo G. Senno**

*A healthy attitude is contagious but don't wait to catch it from others. Be a carrier.*

– Tom Stoppard

Latin, Hispanic, Spanish, Latino, Latina, Latinx, South American, Central American, Puerto Rican, Mexican, Argentinian, Bolivian, Chilean, Afro-Cuban, second-generation immigrant, dreamers, and many other labels fall short in describing people that have some common factors but certainly are not similar in all. To believe that groups of people are alike in all respects, simply because of language, culture, color, religion, sexual orientation, and many other characteristics, is to do them a disservice. To apply such over simplifications in the practice of medicine is akin to practicing cookie-cutter medicine.

This essay is written from the point of view of a Latino physician. The references are the experiences: as a student, resident, doctor, teacher, clinician, private practice practitioner, academic center physician, and other roles. There are no complicated bibliographies or references, no articles to read, no historical figures to quote, and no definitive research. The evidence is common sense and self-evident. As with any essay, this one is open to interpretation and critique and certainly is not all-inclusive. The goal is not to provide an expert article but rather a platform to stimulate thought, perspective, and conversation.

One of the fundamental tenets of medicine is to place the well-being of patients first. This includes taking into consideration their culture, family structure, language, religion, sexual orientation, and many other factors that shape the person as well as their perception of illness, medications, recovery, and the patient-doctor relationship. In other words to instantaneously understand and consider a patient's worldview. But how to accomplish this in the limited amount of time that physicians and patients interact and at the same time deal with complicated diagnoses and treatments.

To assume that the patient belongs to one group and one group only is to discount their individuality as well as their cultural richness and background. Let's not forget

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that medicine is a two-way street; the clinician places the patient in certain categories, and simultaneously the patient is placing the clinician in similar categories, and both are viewing the other through tinted glasses. Some patients assume that a doctor is from a South American country simply based on the doctor's name or appearance. Likewise, a doctor assumes that a patient is Puerto Rican because they speak Spanish only to find out that they are Filipino. Let's face it, first impressions and stereotypes are everywhere; they might be part of our genetic makeup or social structure, and at times we find them useful, but first impressions need to be tempered by recognizing that they are not the totality of the person in front of us.

Communication and understanding are key to moving past first impressions. To show interest in another's language, music, food, and land is both respectful and can serve as a communication bridge. By way of example, the Latin palette is varied and rich in texture and color as the European, African, or Asian ones are. To respectfully ask about a person's background is to be engaged in their heritage and in the initial few, precious, seconds that first impressions are made a well-placed question about food or music can act as an ice breaker.

Geographically North America has many countries where Spanish is spoken. This includes the United States, Puerto Rico, Mexico, Cuba, and others. Likewise it contains countries that can be considered having a Latin influence but not Spanish speaking such as the Bahamas, Barbados, and other Caribbean countries. Central America contains seven Latin countries; these include Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. South America has many others most use Spanish as the native tongue except Brazil utilizes Portuguese. Brazil is considered Latin but differs in its cuisine, music, history, economy, and political structure from the rest of South America. This is a result of the treaty of Tordesillas (1494) signed between Spain and Portugal dividing the world in half at the 38° meridian, allocating anything west of it to Spain and anything east to Portugal. The territory that was to become Brazil fell east of the 38° meridian.

As a language, Spanish is the most extensive manifestation of Latin. Latin also gave rise to French, Italian, Portuguese, and Romanian. These languages are also known as Romance languages. Certainly, people from these countries can be considered Latin, but they can also be considered European, Eastern European, or Mediterranean. Spanish, as a language, also falls under the category of a Romance language. A common misconception is that there are dialects of Spanish such as the "Puerto Rican" or "Cuban" dialect. Simply, Spanish is one language without dialects. The regional differences are the accents and slang terms. This is common in all languages. In English, the nasal New York City accent is very different than the Yat New Orleans accent, and a hero and Po' boy are slang terms for a sandwich. The same occurs in Spanish. Spanish is one language – a person from Spain can talk to a person from Bolivia or from the Republic of Equatorial Guinea (located in central Africa) without any difficulty – but one language does not mean one people.

As geography, language, history, and other factors are considered, the complexity of a person's palette magnifies and with each added level appears more difficult to understand. Unfortunately, in the content of the patient-doctor interaction, the differences come into focus, and the barriers appear insurmountable.

However, differences amongst people are insignificant. Similarities are by far more powerful. A person in pain is a person in pain, a child with cancer is a child with cancer, a parent with hope is a parent with hope, and an 85-year-old with Alzheimer's is an 85-year-old with Alzheimer's. Diseases and illnesses do not recognize cultures nor have language boundaries. Clinicians provide services to the four examples mentioned as well as many more. The question then becomes how as a doctor to provide services to a varied population at the same time respecting all facets of a patient's background.

The answer lies in the strands that bind us: respect, compassion, hope, and thoughtfulness. These four pillars are universal, universal in their timelessness and cross-culturality. At first glance these four words would appear easy to apply; we all think we are masters at such basic matters, but in reality they are complex and their application take years to master.

Respect is defined as showing admiration, admiration for a person's language, beliefs, cuisine, music, and other cultural aspects regardless of how different they are from our own.

Compassion is showing concern for someone else's suffering. This is an integral part of clinical work and the springboard for providing care.

Hope can be thought of as providing a feeling of a favorable outcome. This is a basic emotion, common to all people, that everything will turn out fine, that there is a cure, and that the pain will subside. In a way, hope acts as the driver in seeking a cure.

Thoughtfulness is showing consideration for others, consideration as to how a treatment side effects and interactions will affect the patient. In a way it is the basis for "first do no harm."

Given the nature of the physician-patient relationship, of the above four categories, respect is the only one that applies to both patient and doctor. The other three are mostly the responsibility of the physician. Clearly the greater expectations reside on the shoulders of the clinician. Regardless of our culture, as patients, we want our doctor to show respect, thoughtfulness, compassion, and provide hope. As doctors, we should strive to do so. During the clinical interaction, by focusing on these four basic strands, the patient feels empowered. Of course the clinician must also possess scientific knowledge.

From a doctor's point of view, utilizing respect, thoughtfulness, compassion, knowledge, and providing hope is infinitely easier and more efficient than thinking about differences. Of course, cultural faux pas will occur, but recovery can be achieved by returning to the basics. In clinical practice, respect, compassion, hope, and thoughtfulness can be summarized as being polite. A clinician that shows politeness will be able to understand the patient, and the patient in turn will appreciate it.

Given the above, which is incomplete by any standard, we realize that classifications fall short to describe people that have a common language, background, or ethnicity. More to the point, labels fall short of describing both a group and individual that are culturally rich and textured. Recently, I observed two 10-year-old boys participating in an international competition, neither knew the others language,

ethnic background, or country of origin, but they both knew to use Google translate to communicate.

List of issues facing healthcare in Latin countries:

1. Potable water
2. Lack of infrastructure
3. Basic dental care
4. Adequate sewer systems
5. Lack of health education



**Ricardo G. Senno, MD, MS, FAAPMR**

Title: Brain Medicine Physician and Urban Planner, Master of Science, Public Management and Policy Analysis

Special Interests/Professional Duties:

- Brain Injury and diseases – Physical Medicine and Rehabilitation/Disability physician with extensive experience in the management and treatment of traumatic & anoxic brain injury, stroke, Parkinson’s & Alzheimer’s disease, movement disorders and general rehabilitation
- Former Medical Director of the Brain Injury Medicine and Rehabilitation Program at the Rehabilitation Institute of Chicago

Global Experience:

- Internationally (Slovenia, Argentina, Sweden, Kuwait) consulted on program, hospital, clinic and facility designs as well as patient care protocols.
- Master of Science in Urban Planning, Public Management and Policy Analysis.

# Chapter 22

## International Foundations for Ophthalmology



**Bruce Spivey**

*The security of which we speak is to be attained by the development of international law through an international organization based on the principles of law and peace.*

– Ludwig Quidde

*Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity.* – World Health Organization, 1948

### **National, Supranational, and World Organizations Involved in International Ophthalmology**

Participating in International Ophthalmology is both exciting and gratifying. In order to better understand the entities and organizations involved, it is helpful to understand the structure and the organizational participants nationally, supranationally, and internationally.

As an individual, when approaching the broad and complex world of ophthalmic providers (ophthalmologists, optometrists, opticians, public health workers, nurse practitioners, etc.), it seems quite daunting. There are many major organizations who deal primarily with the interests of their members, e.g., specialty societies. There are many nongovernmental organizations who deal with programs for the indigent or afflicted individuals of the world, either single-disease focused or multiple-disease focused. These organizations play a major role in the life of a professional but are often not able to provide much in the way of information or opportunity to the budding professional, e.g., medical students, residents, practitioners, or other health professional students.

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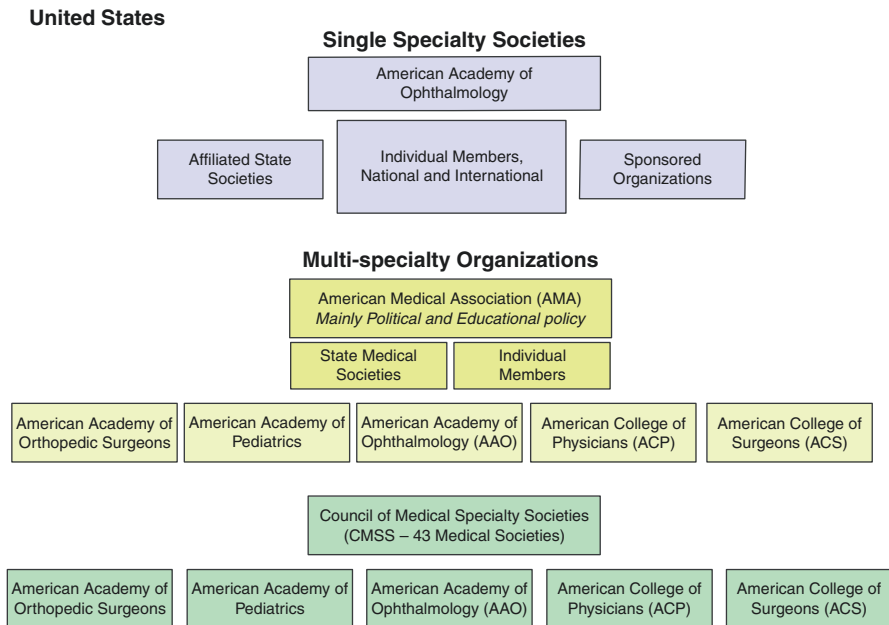
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The intent of this segment of the book is to provide information about the various organizations and societies that are related to the care and treatment of eye patients and to also provide a list of nongovernmental organizations whose needs and programs are usually quite disease or geographically focused.

The organizations are divided into two major groups: one, the medically based and para-ophthalmological societies, and two, the nongovernmental organizations. The various national ophthalmic societies are fundamental in each country, and usually they are members of an organization called the International Council of Ophthalmology (ICO). The ICO is a membership society made up of the major national ophthalmic society in each country plus four supranational ophthalmic societies and many intranational subspecialty societies ([www.icoph.org](http://www.icoph.org)). In the case of the USA, the largest and most active international is the American Academy of Ophthalmology, based in San Francisco, CA. Their EyeCare Volunteer Registry matches opportunities for ophthalmologists to provide education and/or service in developing countries.

The large percentage of international non-governmental organizations (INGO's) are based in Western countries and operate in the developing world.

Trying to understand the structure of the variety of organizations which exist in ophthalmology as well as the rest of medicine is not straightforward. The initial part of this chapter will deal with the national, supranational, and international organizations that form the panoply of types of organizations as well as the individual organizations. See Figs. 22.1, 22.2, and 22.3. The entities mentioned are examples and not inclusive of all in the categories.



**Fig. 22.1** United States Organization



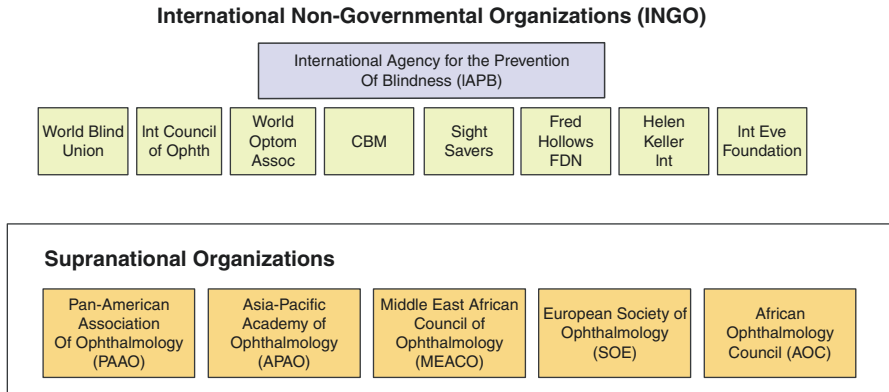


Fig. 22.2 Nongovernment and supranational organization

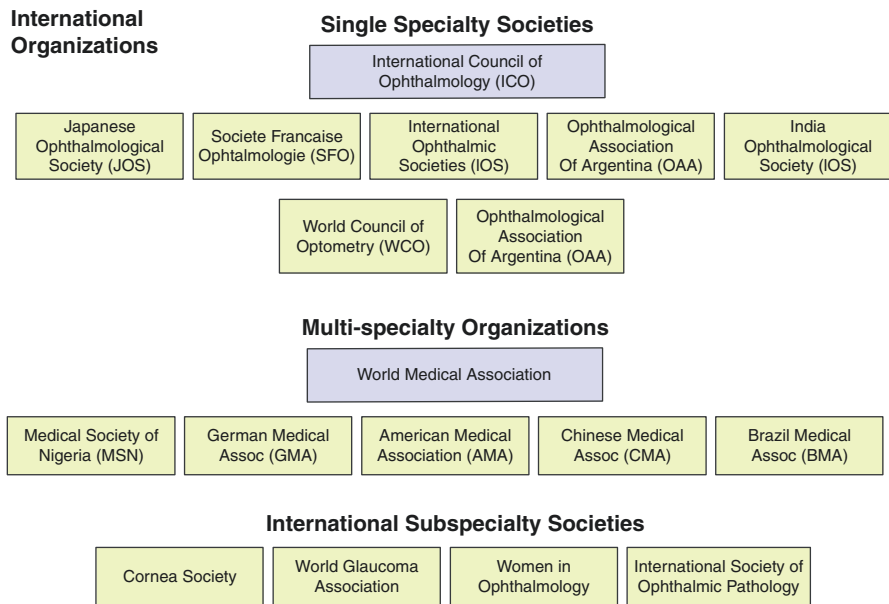


Fig. 22.3 International organizations

The national societies are characterized by the American Academy of Ophthalmology (AAO). Almost every country in the world has a major ophthalmologic society, which in the United States is the AAO. The AAO has 30% of international members. Analogous organizations throughout the world include as examples the Deutsche Ophthalmologische Gesellschaft (DOG), Societe Francaise d’Ophtalmologie (SFO), the Royal College of Ophthalmologists (RCO), the Japanese Ophthalmological Society (JOS), the Chinese Ophthalmological Society (COS), etc.

The supranational societies include the Pan-American Association of Ophthalmology (PAAO), the European Society of Ophthalmology (SOE), the Asian Pacific Academy of Ophthalmology (APAO), the Middle East Africa Council of Ophthalmology (MEACO), and an evolving organization African Ophthalmology Council (AOC). This is composed of national societies from each region.

At each level – supranational or international societies – members are all national societies. In each region or internationally, the national societies are voluntary members of these larger societies and not directed or controlled by them. There is a rich tradition where these societies work together. The ICO has more programs and cooperation than the vast majority of international organizations representing other specialties.

In the United States, there are multispecialty medical organizations such as the American Medical Association, whose members are state and specialty societies. The AMA interests are political and general medical education. Another organization called the Council of Medical Specialty Societies is solely comprised of the major medical specialties, such as the AAO, the American College of Surgeons, the American College of Physicians, the American College of Orthopedic Surgeons, the American Academy of Pediatrics, etc. The CMSS is not their parent, but rather the communication agency that helps to provide a forum for discussion and joint activity when indicated. Since the major specialty societies tend to fully represent their specialty and their specialty's interest, they are the important and basic source of information and connections.

Optometry is similarly organized, and the World Council of Optometry (WCO) is the corresponding optometric organization to the ICO.

There is considerable variation by the specialty societies in their commitment to international activities. The American Academy of Ophthalmology has many international activities and connections as well as a source of information regarding those who may be interested in educational or volunteer opportunities.

Nongovernmental organizations that work throughout the world often have multiple programs in a number of countries. These are considered as international nongovernmental organizations (INGO). These INGOs may be multifaceted with a variety of programs, or more focused, into a single country or a single focal disease (cataract, glaucoma, uveitis, etc.). These organizations work together within a group called the International Agency for the Prevention of Blindness (IAPB). Similar to the ICO and WCO, there is a coordination achieved by membership in the IAPB, but the individual societies are not controlled by, or responsible to, the IAPB.

The organizations listed in grafts are a partial list and can be either multinational or single country-focused organizations, and some do have opportunities for volunteers. If interested, you should contact the organization for references of volunteers who have gone on the missions.

Opportunities for volunteering in international ophthalmology are not readily available and are moving from a situation where short term in-and-out 1–2 weeks (almost tourism ophthalmology) was valued to a desire to have longer-term volunteers of 3-, 6- or even 12-month stints, so that continuity is provided.

A representative list of organizations have been compiled to help you learn about eye care organizations and societies internationally.



**Bruce Spivey, MD**

Title: Retired Ophthalmologist

Special Interests/Professional Duties:

- Past President of the International Council of Ophthalmology (2006–2014)
- First EVP and CEO of the American Academy of Ophthalmology (1976–1992)
- Past CEO of California Pacific Medical Center 1976–1992 (where he was also Chief of Ophthalmology 1971–1987)
- Secretary General of the International Council of Ophthalmology (1994–2006)
- Past President of the American Board of Medical Specialties, the Council of Medical Specialty Societies, and the American Ophthalmological Society and a number of other healthcare organizations

Global Health Experience:

- Traveled extensively around the world
- Organizational influence with worldwide influence
- Works with international organizations to make a difference in the world

# Chapter 23

## Global Ophthalmology



**Leela Raju, Assumpta A. Madu, and Mildred M. G. Olivier**

*Each and every one of you has the power, the will and the capacity to make a difference in the world in which you live in – Harry Belafonte*

It is estimated that over 285 million people are visually impaired globally, with 39 million of them completely blind. A person with low vision is considered to have a best corrected vision of 20/70 or worse in their better eye. In the United States, a visual acuity of 20/40 is necessary to be able to drive without restriction. Eighty percent of people that have low vision are in low-income settings and 82% are over 50 years of age. As life expectancy continues to increase, the number of people that will have some degree of vision impairment is expected to continue to rise.

The leading cause of moderate to severe decreased vision is uncorrected refractive errors, in other words, people that need glasses and are unable to get them. Cataract, a yellowing of the natural lens of the eye, is the leading cause of avoidable blindness in middle- and low-income countries. Glaucoma is the leading cause of nonreversible vision loss. The most important number of these is that 80% of visual impairment is avoidable.

Infections used to be one of the leading causes of vision impairment, but this has been greatly reduced in the last 25 years. Trachoma is the most common cause of ocular infection that can lead to corneal inflammation and lid scarring that can

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result in permanent corneal scarring. *Chlamydia trachomatis* is spread by the lack of clean water for cleaning the face, discharge from the eyes and nose during infection that attract flies that act as a vector, poor bathroom access which leads to fecal contamination that creates a breeding area of flies, and overcrowded living conditions. However, programs like the World Health Organization's SAFE (surgery for trichiasis, antibiotics for the bacterial cause, facial cleanliness, and environmental improvements to access clean water and bathrooms) have made great strides to reduce the number of infections from 146 million cases in 1995 to 84 in 2007. Treatment can be as simple as one dose of the oral antibiotic azithromycin.

Onchocerciasis is the second leading cause of infection blindness. About 18–37 million people are infected, with 1–2 million of them visually impaired and 270,000 blind. This infection is due to *Onchocerca volvulus* microfilariae spread by blackfly bites. The infection causes a debilitating itching—of the earlier findings—and skin changes often compared to “leopard skin” or “cigarette paper.” Damage occurs to the eye when the adult worm dies and creates inflammation that can lead to corneal scarring, glaucoma, cataracts, retina inflammation, or optic nerve damage. The degree of inflammation differs by strains which are thought to be due to the differing amounts of *Wolbachia* bacteria (an endosymbiont) that are released upon the death of the microfilariae. This inflammation is compounded by the fact that there is cross-reactivity of an *Onchocerca* antigen and a human retinal antigen that can lead to worsening of the retinal inflammation during treatment. Patients need to be treated with doxycycline and ivermectin for the life span of the adult worms for every 6 months as long as there are signs of infection.

Maternal infections during a baby's development can also lead to lasting effects on a child's vision. Rubella, toxoplasmosis, cytomegalovirus, and herpes simplex can all cause damage to different portions of the eye during development. Rubella can cause children to be born with cataracts and cardiac and brain abnormalities. Unlike the other infections, the incidence of maternal rubella infections can be reduced by vaccinating girls before they have children. This is where public health policy can have great impact on global eye health. Unlike the United States, majority of countries don't have the measles/mumps/rubella (MMR) vaccine on the required list for children. Organizations like Rotary International have proven how effective an immunization program can be with their Polio Plus Program. If MMR is the next vaccine that can reach all children, then we can hope to see a reduction in the incidence of congenital cataracts. This is a much more cost-effective method to reduce avoidable childhood blindness since it would be very difficult to reach all these infants with surgery.

Since 80% of our learning is through vision, early interventions to prevent childhood vision loss are tantamount to stopping the vicious cycle of poor vision and poverty. Blindness in children affects not only that child but also the family that often must remove another family from the workforce to take care of the child and also the society that will need to have the funds and infrastructure to offer

programs and schooling for the visually impaired child. Three quarters of the world's blind children live in developing countries with 500,000 becoming blind each year. Perhaps the saddest statistic is that it is estimated 60% of these children die within 1–2 years of going blind. If one estimates that the child would have lived to 75 years old, contributing to the economy, the economic impact of these deaths—\$4 billion per year in India alone—it is easier to understand the impact to not just the family but society as well. This is why the World Bank has deemed that combatting childhood blindness is the most cost-effective of health interventions.

Given that lack of glasses is the most common reason found for poor vision, improving access for children is an important part of improving children's vision. If children need glasses, especially when one eye sees better than the other, it is very important to get them the correct prescription before the age of 10 years. After that age, the connection between the eyes and the brain becomes hardwired, and the brain may choose to ignore one eye—called lazy eye or amblyopia. This can also result in one eye turning in or out and not tracking with the other eye. Surgery can be done to help straighten the eyes but it will not improve vision in the lazy or amblyopic eye.

Several eye foundations and nonprofit organizations actively screen and provide necessary glasses every year to children and adults. For example, the Eye Foundation of America, a nonprofit started in 1977 by V.K. Raju, MD, FRCS, FACS, is working with the Goutami Eye Institute to screen schoolchildren in the state of Andhra Pradesh. They reviewed the data from their screening process and found that children can be screened for as little as 13 cents per child. By also training teachers to know what to look for and to help reinforce that children need to wear their glasses after receiving them, the program can be reproducible year after year since the teachers will be seeing a new group of children each year. Other foundation programs follow similar work flow and provide glasses for near and distance vision.

Another area of public health that would protect eye health and vision is eye protection in work environments as well as from sun and harsh environments. Alkali injuries due to cement (contains lye) or chemicals cause permanent damage to the stem cells of the eye surface and can result in severe scarring. The eyes are the third most common area damaged by penetrating injuries after the hands and feet. This has resulted in 1.6 million blind people, either one or both eyes. In many developing countries, these injuries tend to occur in younger men, who often dropped out of school to work and help support the family but who may now have difficulty working due to their poor vision in one eye. Chronic exposure to sun and dust can often lead to development of severe pterygia, which can adversely affect vision. The use of protective eyeglasses and sunglasses is a preventive measure that is sight saving. Crossroads International medical mission provides sunglasses for the adults and children alike.

Glaucoma, the severity of which can be reduced with early detection and treatment, can cause people to lose their peripheral vision and ultimately become blind. The WHO estimates that glaucoma accounts for 3% of the cases of global visual

impairment—around 37 million people. There are many types of glaucoma, but one of the most common types, open-angle glaucoma, is most prevalent in Africa where screening programs are not as robust as what is necessary. Open-angle glaucoma often worsens with older age as the optic nerve is damaged over longer periods of time. Another type of glaucoma, angle-closure glaucoma, is more common in Asia and can cause sudden vision loss. As life expectancies increase, the number of people with glaucoma will likely increase, and the WHO has predicted 111.8 million will be diagnosed with glaucoma by 2040, disproportionately in Africa and Asia.

While preventing avoidable blindness would be an ideal scenario in many cases, certain eye problems like cataracts cannot be prevented entirely, and surgery is needed. In those instances, there are techniques that have been developed that can achieve wonderful, cost-effective results. While many countries use phacoemulsification as the primary method of cataract removal, a manual small incision cataract extraction technique requires less equipment, can be done very affordably on a large scale, and can utilize a more cost-efficient intraocular lens (IOL). This technique can be used in all ages and in cases of very advanced cataract.

The most important issue when performing surgery internationally is availability of follow-up. For cataract it is to make sure there are no signs of infection the week after surgery—the period of highest risk. Other surgeries can present greater challenges however. Corneal transplants are often the only method to provide a clearer view for the patient and can present a number of challenges since the body treats a transplanted cornea like any other transplanted organ and can reject it at any time. In many countries there are still social taboos about procuring corneas from people who have passed away, and it limits what can be done surgically. Once the surgery is performed, the patient needs regular follow-up and access to someone who can determine if there are signs of infection or rejection which can happen at any time. Organizations like SightLife are trying to expand the number of surgeons that can both perform and take care of corneal transplants so more people can be helped. The cultural taboos, however, may take longer to address.

The utilization of telemedicine may be a way to address the need for specific ophthalmic care like following corneal transplants. This could help rural hospitals have access to subspecialty care like ophthalmology and also help reduce the cost of having to screen large populations. Diabetes provides an especially difficult scenario for many developing countries as it has often been thought to be more of a developing country problem and often requires tertiary care. Diabetic retinopathy can cause a 10–20 times greater risk of vision loss. However, as middle classes are arising in many developing countries, diets are changing as well and leading to worsening diabetic retinopathy. In order to achieve earlier screening, the use of diabetic cameras that take images of the retina to look for bleeding can help improve access to many and lead to addressing retinopathy before it leads to permanent retinal damage.

The screening of premature babies is also an area where telemedicine can be a great adjunct. It is not feasible to have an ophthalmologist examine all premature children in all of the neonatal intensive care units, but by using a traveling camera and a technician well versed in taking photos, babies that need treatment can be identified and brought to an ophthalmologist as necessary. A program such as this at the Goutami Eye Institute has screened over 1500 babies in 1 year.

Global ophthalmology can appear like an insurmountable problem if one thinks of surgery as the only answer. However, avoidable blindness, preventing what we can with today's resources and technology but couldn't 20 years ago, is a more realistic goal. While continuing to train ophthalmologists to give everyone greater access to care that is needed, programs through public health or early screening can be a cornerstone to reducing the need for tertiary intervention in the future. Collaboration among the different groups interested in these goals is also important so that time is not wasted reinventing the wheel with every new program. Only by working together can it be possible to provide high-quality affordable and accessible care to as many people as possible.

Ophthalmology-based programs such as the American Academy of Ophthalmology (AAO) have society-wide initiatives to tackle many of the avoidable blindness issues. They actively promote and fund programs with the goal of achieving global vision care by 2020. AAO thru VISION 2020 is invested in eliminating the causes of avoidable blindness worldwide. The guiding principles of AAO's VISION 2020 are summarized in the acronym *ISEE*:

*Integrated* into existing healthcare systems  
*Sustainable* in terms of money and other resources  
*Equitable* care and services available to all, not just the wealthy  
*Excellence*—a high standard of care throughout

## Additional Resources

1. WHO website
2. AAO website



### **Leela Raju, MD**

Title: Corneal Specialist, Assistant Clinical Professor and Vice Chair of Clinical Operations, Department of Ophthalmology, Associate Professor at New York, University

Special interest:

- Ocular surface reconstruction, complicated cataract surgery, herpetic eye disease, and anterior segment reconstruction

Global Experience:

- Coordinator for the nonprofit Eye Foundation of America, the goal of improving eye care around the world, and has traveled to Ghana and Tanzania, makes a yearly trip to India to visit the Goutami Eye Institute in Rajahmundry, AP, to see patients, surgery, and teach.





**Assumpta A. Madu, MD**

Title: Vice Chair of Clinical Operations and Clinical Associate Professor at NYU Langone Medical Center, Department of Ophthalmology

Special Interests/Professional Duties:

- Global health and gender health disparity
- Completed tenure on the Residency Review Committee Ophthalmology
- Accreditation Council Graduate Medical Education
- Delegate to the American Medical Association and on Minority Affairs Section

Global Experience:

- Medical missions to Guatemala



**Mildred M. G. Olivier, MD, FACS**

Title: Professor of Surgery Chicago Medical School (CMS) , Rosalind Franklin University of Medicine and Science  
Dean of Inclusion and Diversity, Director of Global Health and Ophthalmology Faculty for Chicago Medical School at Rosalind Franklin University Medicine and Science, North Chicago, IL

General Interests/Professional Duties:

- Glaucoma management and surgery in underserved community
- Former Board of Trustees for American Academy of Ophthalmology working on program to increase diversity within the field Women's leadership development
- Disparities in vulnerable populations locally and globally

Global health Experience:

- American Glaucoma Society and Foundation and AGS Cares committee
- Chair of the Diversity Committee for The Association for Research in Vision and Ophthalmology fighting healthcare
- Education and Skills trans in Haiti
- ORBIS Flying Eye Hospital Volunteer Jamaica

# Chapter 24

## Ophthalmology: India



**Alan L. Robin**

*Intelligence and capability are not enough. There must be the joy of doing something beautiful.* – Govindappa Venkataswamy

*When we grow in spiritual consciousness, we identify with all that is in the world there is no exploitation. It is ourselves we're helping, ourselves we're healing.*

– Govindappa Venkataswamy

### Number of Eye Care Providers

There is a significant shortage of ophthalmologists in India. Despite the increase in numbers over the past decade, the population over 60 is increasing at a faster pace than the number of ophthalmologists is increasing. However, this is deceptive. Not only that, but the number of qualified ophthalmologists who can treat and perform high-quality surgery is far less than the numbers might indicate. A good example is that a well-trained graduate from the Aravind Eye Care Center may perform close to 1000 cataracts during his or her training period. This would include not only MSICS but also phacoemulsification surgery. A resident at the local government hospital may only perform ten during his or her training. Few seek postgraduate fellowships and so the quality of care may vary. Most programs are unaware of postgraduate educational activities and resources of the International Council of Ophthalmology and American Academy of Ophthalmology. Although Internet access is relatively universal, many are unaware of online free resources such as “[gonioscopy.org](http://gonioscopy.org).”

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## Medical and Ophthalmic Training

India's relative lack of healthcare regulations [1] is a hindrance to possible quality of care yet at the same time allows for massive innovations that are not encumbered by unnecessary regulations. India's performance on many health metrics is relatively poor. Infant mortality is more than five times higher in the USA; most of the population with cancer and diabetes will neither get diagnosed nor treated. The density of physicians is  $\frac{1}{4}$  that of the USA and  $\frac{1}{2}$  of China. Ophthalmology is no exception. Many of the ophthalmologists are excellent clinicians and surgeons, yet many graduates of residencies may not know how to applanate or perform dilated indirect ophthalmoscopy. Many also do feel comfortable performing basic surgeries such as cataract. Yet the care at some of the leading hospitals can be equal if not better to that received in many of the best US or European centers.

There are some exemplary ophthalmic programs comparable to the best in the USA. In these programs the emphasis is not only on public service but also on training and research. They are even concerned about the impact factors of the journals where their manuscripts are published. They have very structured training programs and fellowships where both other Indians and foreigners from the developed world are trained. However, I believe these better programs are the exceptions rather than the rule. The basic education at many training programs is lacking both in general medicine and ophthalmology itself and is totally inadequate. Some recent sources find that even the resources in many programs are inadequate: almost a third do not have applanation, and over 70 percent did not have B-scan capability or pachymetry, automated perimetry, or an argon laser equivalent or the potential to perform cataract surgery using phacoemulsification. With regard to education, the subspecialty support services were lacking! Although the International Council of Ophthalmology (<https://www.icoph.org/>) offers online training, their goals are to enhance ophthalmic education and improve eye care. They provide materials for both medical student and resident and fellowship training. They may become a valuable resource. Three quarters of the programs had no oculoplastic, pediatric, or neuro-ophthalmology services. Over one half have no cornea or retina services. To compound the training issues, library resources were also relatively poor in most institutions surveyed. There is no equivalent to "board certification" nor standardized requirements for residency completion.

However, as mentioned, there are many wonderful eye care programs in India. Some of these have multiple individuals in each subspecialty, frequently publish in high-impact journals, and have superb residency programs. I myself would not mind if either my family members or myself were treated or operated upon in some of these programs. The goal of these programs is eliminating needless blindness. Some of the better programs (and the list is definitely not totally inclusive) are Aravind Eye Care System, Tamil Nadu; LV Prasad, Hyderabad; Sankara Nethralaya, Chennai; AIIMS, New Delhi; Sadguru Netra Chikitsalaya, Chitrakoot, Madhya Pradesh; Shroff Charity Eye Center, New Delhi; HV Desai Eye Hospital, Pune; Disha Eye Hospital, Kolkata; and PGIMER, Chandigarh. All of these eye hospitals

do both private and public service care with some also performing outreach and eye camp work.

My main familiarity is with the Aravind Eye Care System ([Aravind.org](http://Aravind.org)). There is both a book (<http://infinitevisionaries.com/blog/>) and video (<https://www.youtube.com/watch?v=hHLzsuAueEM&feature=youtu.be>) documenting the development of Aravind. Because of my familiarity, I will discuss it primarily. I have been associated with it for close to 25 years and helped to found their glaucoma department at that time. I met Dr. Venkataswamy, the founder, in the mid-1980s while in Nepal. He invited me to Aravind and I have been coming back ever since. I have helped train their staff and have initially had them stay with me while in the USA.

The Aravind System is very patient safety and quality orientated. Aravind has grown from 11 beds in 1976 to 6 tertiary care centers with both research and specialty training, 6 secondary care centers with specialty diagnosis and cataract services, 6 outpatient centers where comprehensive eye examinations and treatments of minor ailments can be performed, and over 70 vision centers which are basically primary eye care centers run by paramedical professionals with online telemedicine. They feel that quality care is essential. There are constant quality assessments. Initially they made some basic decisions that have molded their success. First, they decided that their mission of preventing needless blindness needed to be self-sustaining rather than rely on in-kind donations. To perform this they required high volume and SOPs to minimize cost. Rather than going out and performing surgery at remote eye camps where quality of care could not be assured, they provided transportation to bring patients to a main high-volume hospital. They perform mass screening and use vans and busses to transport patients back to a base hospital for surgery. This maximized surgical efficiency and quality control. They were early adopters of intraocular lenses (IOLS) as they realized that patient satisfaction could increase further patient recruitment using social marketing. They realized that it was then necessary to manufacture their own to ensure quality and decrease price.

Thus, the development of Aurolab ([Aurolab.com](http://Aurolab.com)) responds to the need for quality control and low cost production of ophthalmology supplies. Aurolab is the manufacturing arm of Aravind. They make over two million IOLs/year, antifungals, antibiotics, sutures, glaucoma drainage devices, lasers, phaco machines, and all topical medications for ophthalmology as well as gasses and viscoelastics used for intraocular surgery. This manufacturing arm has aided Aravind maintaining self-sufficiency. Their primary markets are their own use (in 2015–2016, they had over 3.7 million outpatient visits, 400,000 surgeries, examined and screened over 100,000 children, dispensed 575,000 prescription spectacles, held over 40,000 diabetic screening camps, procured over 40,000 corneas for donation, and treated one-half free or greatly subsidized). The total staff is over 4000 people for the hospital and almost 500 for Aurolab.

Aravind is quite advanced in the field of telemedicine and has developed a mature and growing set of vision centers. As in every prevalence study, a large percentage of citizens with blinding diseases needing definitive eye care are not able to obtain

adequate healthcare services for a multitude of reasons. Among them are convenience of eye care, transportation, ease of obtaining eye care, and access. Aravind has realized that screening eye camps depends on specific dates and times and this type of screening is not patient-centered. To answer this need, they have developed a system of 59 vision care centers. Each associated with a tertiary care hospital and at least 40 min away. This is a self-sufficient service in run by sisters (woman power that helps Aravind become what it is). Each sister is a high school graduate with years of specialized training in specific eye care tasks. Also, each is from the specific community in which she serves, enabling the community members to have trust in and confidence in the sisters. All of the processes in the vision centers are electronic from registration, medical record keeping, to telemedicine for each patient. The cost of the examination is based upon the bus fare from that location to the tertiary hospital and averages less than US\$1.00. These vision centers enable the use of modern information technology to aid in caring for those in relatively rural settings. By doing this, the staff are able to provide health education to many who have received none to date, thus hopefully eliminating much needless blindness by changing the behavior of the rural citizens. Each vision center allows for refraction, dispensing of spectacles, BMI, urinalysis, blood pressure determination, anterior segment examination, applanation tonometry, and fundus examinations. Each can also allow for the provision of minor therapies such as foreign body removal. With vision centers in place, it enables patients who are postoperative to come for evaluation rather than waste a day for themselves and a family member and travel many kilometers.

Aravind also realized that eye care services do not exist in a vacuum. They have emphasized a community approach rather an individual approach. LAICO (Lions Aravind Institute of Community Ophthalmology) bridges the gap between the entire community and individual care. LAICO is more than a public health institute. In its quest to eliminate needless blindness, it serves all. It assesses needs, develops appropriate public health research, and trains the many non-ophthalmic faces of eye care (hospital administration, instrument service and maintenance, outreach programs, and public health planning). It enhances eye care through its public health perspective.

Aravind's emphasis is self-sufficiency and quality. They are able to do this at low cost because of their quality metrics. They are green with minimal waste, allowing them to become cost-effective.

For those interested in medicine in the less-developed world, Aravind offers many courses both for trainers and trainees. These are well-coordinated fellowships in subjects such as manual small incision cataract surgery to instrument repair. They offer relatively low-cost housing during your stay in one of their hospitals.

## Reference

1. Reddy KS. India's aspirations for universal health coverage. *N Engl J Med.* 2015;373(1):1-5.

## Additional Resource

How low-cost eye care can be world-class Available at: [http://www.ted.com/talks/thulasiraj\\_ravilla\\_how\\_low\\_cost\\_eye\\_care\\_can\\_be\\_world\\_class](http://www.ted.com/talks/thulasiraj_ravilla_how_low_cost_eye_care_can_be_world_class).



**Alan L. Robin, MD**

Title: Glaucoma Specialist

- Associate Professorships in Ophthalmology International Health at Johns Hopkins University
- Clinical Professor of Ophthalmology at the Veteran's Administration

Special interests/Professional Duties:

- Principal investigator, Aravind Comprehensive Eye
- Studying prevalence studies in Tamil Nadu, India
- Holds patents for interactive diagnostic algorithms for glaucoma, medication delivery systems, and glaucoma surgical devices
- Current research involves use of newer delivery systems for medications to treat open-angle glaucoma, innovative collaborative screening for glaucoma and diabetic retinopathy and improving adherence to glaucoma therapies

Global Experience:

- Deeply involved in both the global eradication of needless blindness and establishing strategies for better eye care delivery
- Authored or co-authored 230 peer-reviewed papers and 24 book chapters and given well over 100 invited lectures in the USA, Canada, Australia, New Zealand, Europe, Japan, South America, India, and Southeast Asia
- Consultant to the International Association to Prevent Blindness, SEVA Foundation, Tissue Banks
- Involved with ORBIS International, Aravind Eye Foundation, and World Health Organizations
- Completed over 100 trips to India and Nepal since the 1980s and worked closely with Dr. Ruitin Kathmandu and the Aravind Eye Institute
- Co-director at Aravind Eye Institute's implementing glaucoma service
- Honorary member of both the Indian and Nepal Ophthalmological Societies

# Chapter 25

## Coda



**Clarisse C. Croteau-Chonka**

*We strive so that someday we may eliminate the disparities in healthcare that exist here in the US and abroad. – Mildred MG Olivier*

This section of the book serves as a coda on global health more than as a conclusion about lessons learned or a survey of this text. These remarks present a brief discussion of the visible and invisible motifs that connect the chapters in this volume and the possibilities that follow from those ideas. Like in music, this written coda is composed of a set of variations on the subjects that recur throughout the book, rather than as a recap of the specific content of the sections.

Themes are woven through the chapters of this book, sometimes in the words of the text, at other times in the context of the writing. Those underlying messages point to additional ways to participate in global health service beyond those explicitly discussed in this volume.

### **Diversity as a Foundation for Global Health**

Physicians, medical students, educators, and administrators have contributed their reflections to create this overview of global health. Deliberate effort was made to include a variety of voices. Generational perspectives as well as gender viewpoints are incorporated in the preceding articles.

The rich assembly of global health professionals who contributed to this work developed their remarks independently. The perspectives expressed in the chapters reflect the thoughts of authors with uniquely different backgrounds, personal experiences, racial and ethnic origins, ages, and roles in healthcare. Yet, there are still more viewpoints that need to be included in creating an environment of health.

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There is no doubt that other practitioners need to be invited into the conversation. This is especially the case in a time when medical training is increasingly focused on clinical practice by interdisciplinary teams. Moving from solo practice to care teams offers an opportunity to engage diverse individuals in service to an interconnected world. Finding common experience arising from different roots requires real effort, however.

A major task in global health is finding the balance between standardizing medical care and finding new ways to deliver that care in different contexts. One of the limitations of global health service has been the assumption held by many volunteers that the way medicine is practiced in resource-rich areas is the standard. Increasingly, as more diverse perspectives are incorporated into global health work, there is an awareness that there are different ways to achieve health goals.

The concern to develop inclusive foundations for global health comes through in the cross-cultural engagements of all of the authors. Some have returned to their family's country or region of origin. Giving back to the people who share their ancestry motivates many healthcare workers to engage in global health. Others have forged connections to communities that reached out for assistance or that interested them.

The motivations for involvement in global health are as diverse as the authors who contributed to this book. Though they come to global health as unique individuals, they implicitly share a promise to interact with respect for diversity. They have set themselves and the readers the task of respectfully listening to and learning from the community of people drawn together by health needs.

## **The Ultimate Goal of Global Health Engagement**

In the final line of her introduction to this book, Mildred MG Olivier, MD articulated a call to healthcare workers to engage in providing medical treatment to the entire global community. Her conviction is that participation in global health service can drive the development of a more equitable system of healthcare. By placing themselves in unfamiliar circumstances, medical personnel ultimately engage in taking a new look at their daily work.

While there are some exceptions, global health initiatives are generally defined not so much by travel to a new location as by a commitment to provide services to low-resource people. Participating in volunteer service away from their customary, economically stable, environments challenges trained providers to become aware of circumstances where their particular skills are needed. They generally come to hear requests from local communities for the types of assistance they need rather than assuming they know local circumstances. They see the differences in access to care in different communities, and, it is Dr. Olivier's hope, they become a part of the solution to healthcare inequities.

The interchange between their assumptions about what they should provide and what would be most helpful to the communities where they go becomes vital to their



understanding of providing patients with the care they need. The medical volunteers are shaped, often profoundly, by the people and places they encounter in their global service. What may have started out as a “gift” to underserved people can transform into a dialog on healthcare in different environments. The professional and patient come to understand what heals that person in differing circumstances.

For the authors in this volume, there is far more to global health than the skills and services they take to the world beyond their own environment. What they learn from their colleagues and patients is part of their growth as healthcare workers. Many of the contributors have established long-term relationships with global service organizations or with specific places. Repeated exposure to the challenges of different environments has fostered their reflection on questions about what yields optimum outcomes for patients and enhances their creative problem solving on how to enhance healthcare globally.

## **Dialog and Collaboration**

A comprehensive definition of global health focuses on an interdependent view of public health. This inclusive perspective is used as a term to discuss an international, epidemiological perspective on public health initiatives. Under this rubric, global health assumes that individual areas exhibit unique conditions impacting healthcare, but all areas are linked by a common human condition.

Global interconnectedness is changing global health initiatives. The increasing ability to travel requires that the local practice of medicine be aware of the global context for health and disease. What once were localized diseases (ranging from flu to drug-resistant TB to Ebola) can spread as quickly as a single flight. Resource-rich areas are sometimes finding themselves dependent on global partners from areas where they have gone for global health trips for information on diagnosis and treatment of diseases that are new to them but altogether too familiar in other areas.

The impact of technology means that healthcare delivery is not nearly as geographically determined as it once was. Telephones allow physicians in remote areas to collaborate with colleagues in major medical centers. Videoconferencing contributes to medical education in places where medical educators are in short supply. Telehealth initiatives are creating new means of healthcare tracking.

The Internet is also shaping the work of medicine by allowing for routine medical tasks to be performed by trained individuals anywhere. Medical scans may be taken in North America and read in Asia. Phone applications designed in Africa to meet the screening needs of large numbers of people at low cost are disrupting more costly and time-consuming protocols in Europe. Knowing what kind of medical care is available in a single place requires asking questions and listening carefully for answers.

Participation in global health efforts establishes the basis for discussion of shared medical concerns. The interconnectedness of the global community is leading to a recognition of the interdependence of all people. A single city or region

may be both resource-rich and resource-poor, requiring local healthcare workers to use multiple techniques to provide care to their patients. Global health enterprises begin with dialog, lead to collaboration, and must become shared activities in an interconnected world. In this model healthcare professionals who have global health experience are needed to lead in creating collaborative medical protocols and procedures.

## **The Teaching Learning Cycle for Global Health**

Sustainable learning is more important to advancing global health than any amount of direct medical service. This idea is contrary to what is frequently seen as the main purpose of medical volunteering in underserved areas. What doctors, nurses, and other healthcare workers do when they pledge time and resources to meeting the health needs of people throughout the world is generally seen as the whole point of global health initiatives. After all, patients' needs are great, skilled practitioners are limited in number, equipment and supplies are often in short supply, and the opportunity to connect all of them in the same time and place is rare.

The images that come to mind of medical missions are of physicians in remote areas with large numbers of patients waiting to see them, of the impact of untreated disease, of surgeries conducted in very spare facilities, and of heroic service on the part of medical professionals. Such direct service leads to an awareness of the international and national mismatch between the need for medical services and the number of trained personnel. That recognition in turn creates an opportunity to examine how new healthcare workers are trained.

The interplay between teaching and learning that takes place in global health engagements is one of the major sources of satisfaction for the clinician volunteer and for the receiving community. Where most of the attention in discussions of global health is on the medical services that are provided, teaching local healthcare workers is an important part of what makes volunteering worthwhile for the hosting community. Clinical care is a way to make a difference for individuals, but teaching is a way to sustain the impact of global health service beyond the length of a trip.

The contributors to this book have each, in their own way, taken the opportunity to look at the training needed by physicians and other healthcare workers globally. Many have moved from delivering direct service during their global health engagements to training healthcare workers to provide for their own communities. Others have taken on the task of helping design medical systems that eliminate disparities in medical services.

Learning from the local community is a major factor in sustaining the relationship for long-term volunteers. Growth and innovation in healthcare delivery come

when assumptions about what contributes to disease, health, and healing are challenged. Experiencing not only the needs in other communities but also the creative solutions to those needs can motivate a fresh look at the assumptions held at home.

Professional education involves both support for local medical education efforts and skill transfer on the part of visiting medical personnel. Local healthcare training is confronted with the standardization of curricula globally. While each country or region has its own approach to best practices in medical education, the increasing interconnectedness of the world creates a need to develop a common conversation about the tension between international medical criteria and medicine individualized for a place, culture, or person.

Sustainable learning prepares us for the dialog that is necessary to understand health in an increasingly interdependent, complex, and often conflicted world. Where the word education highlights formal teaching, sustainable learning points not only to education but also to skill transfer, engagement with local medical practices, the development of cultural competence, and self-reflection. The implication is that sustainable learning is continuous and involves an exchange of perspectives.

### *Disparities in the United States*

The opening quotation for this coda points to a dimension of global health that is not directly discussed in the preceding chapters. That is, global health engagements can take place in the United States or any other country with healthcare disparities. No matter how many medical resources exist overall, there are still unmet needs in virtually every community. Both acute and chronic healthcare needs are a result of poverty, social circumstances, and unrecognized environmental toxins.

For those with limited time or desire to travel, there are many options to provide medical care to people close to home who would not otherwise receive it. Providing specialty medicine care in areas where distance to hospitals and doctors is great is one option. Offering to contribute to the staffing and organization of medical clinics whose population is comprised of minority individuals is another. Being part of screening programs designed to identify unrecognized health conditions is just another among many opportunities for service. Whether as part of medical training or a long-term commitment, such service is a vital part of the community engagement of healthcare professions.

Global health asks that everyone engaged in sustaining and restoring health reflect on ways to contribute, both internationally and nationally, to creating a healthier society. It is in doing this that we join in the dialog about what we need to lay the foundation for a world characterized by a healthy interdependence.

**Clarisse C. Croteau-Chonka, PhD**

Title: CEO of And So It Begins, llc – Consulting on education and economic development in the biosciences

**Special Interests/Professional Duties:**

- Medical and biosciences education
- Enhancing the teaching-learning cycle for healthcare personnel
- Engaging diverse populations in providing medical service
- Supporting collaborations among healthcare practitioners and researchers.

**Global Experience:**

- Educational programs for traditional medicine
- Program design for medical services in under resourced urban areas

# Correction to: Chapter 8 Encountering Traditional Medicine in Global Health Service



Alexia C. Croteau-Chonka

## Correction to: References in chapter had been linked incorrectly and the same has now been corrected as below.

1. The quote from Stephanie Espinosa in Pg. 103 has been linked to the two footnotes that are included in the “Suggested Reading” section as:  
“...transforming by themselves. – Stéphane Espinosa [28] [29]”
2. The two references in the “Suggested Reading” section in Pg. 117 has been moved into the “References” section and renumbered to match the footnotes that was given at the end of the quote in the beginning of the chapter. Both the corrections has been updated in chapter.

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The corrected online version of this chapter can be found at  
[https://doi.org/10.1007/978-3-319-98660-9\\_8](https://doi.org/10.1007/978-3-319-98660-9_8)

# International Eye Organizations: A Select List

The intent of this segment is to provide information about the various organizations and societies that are related to the care and treatment of eye patients and to also provide a list of nongovernmental organizations whose needs and programs are usually quite disease or geographically focused.

The International Agency for the Prevention of Blindness has a membership list which includes other organizations that's available online <http://www.iapb.org/member-directory>.

Organization	Email	URL	Mission statement
AMD Alliance International	<a href="mailto:info@amdalliance.org">info@amdalliance.org</a>	<a href="http://www.amdalliance.org/">http://www.amdalliance.org/</a>	“AMD Alliance International strives to bring knowledge, help and hope to individuals and families around the world affected by AMD. Our mission is accomplished through: Generating awareness and understanding of age-related macular degeneration; Promoting the importance of education, early detection, knowledge of treatment and rehabilitation options; and Preserving vision and improving the quality of life of individuals affected by age-related macular degeneration.”

Organization	Email	URL	Mission statement
Aravind Eye Foundation	<a href="mailto:info@aravindeyefoundation.org">info@aravindeyefoundation.org</a>	<a href="http://www.aravindeyefoundation.org/">http://www.aravindeyefoundation.org/</a>	“The Aravind Eye Foundation, formerly the Friends of Aravind, was founded in 2000 to support Aravind by networking, building partnerships with academic institutions and sharing best practices with other eye care facilities. Through targeted investment in capacity building, community outreach, medical research, and patient support, Aravind Eye Foundation’s Board works towards realizing Dr. V’s vision of eliminating needless blindness.”
Armenian EyeCare Project		<a href="http://www.eyecareproject.com">www.eyecareproject.com</a>	“Founded in 1992 and incorporated in 2001, the EyeCare Project is a California Nonprofit Public Benefit Corporation. Over the past 21 years, with programs that combat the debilitating causes of blindness, we have been able to treat eye disease, restore sight and change lives. The Project’s mission is to eliminate preventable blindness and to make eye care accessible to all Armenians. To accomplish our mission we have developed a Five-Point Initiative in Armenia, "Bringing Sight to Armenia Eyes," which includes: · medical education and training · direct patient care · public education · research · capacity building.”

Organization	Email	URL	Mission statement
Brien Holden Vision Institute	<a href="mailto:info@brienholdenvision.org">info@brienholdenvision.org</a>	<a href="http://www.brienholdenvision.org/who-we-are/the-foundation.html">http://www.brienholdenvision.org/who-we-are/the-foundation.html</a>	“At the Brien Holden Vision Institute Foundation there are four key pillars of our organization: human resource development, service development, research and social enterprise. These pillars form the basis of our multi-faceted strategy to eliminating avoidable blindness worldwide and transforming the lives of those in most need and contributing to poverty reduction.”
<a href="http://brightfocus.org">brightfocus.org</a>	<a href="mailto:info@brightfocus.org">info@brightfocus.org</a>	<a href="http://www.brightfocus.org/">http://www.brightfocus.org/</a>	“We have one, important goal: <i>to end brain and eye diseases in our lifetime.</i> ”
<a href="http://cartercenter.org">cartercenter.org</a>	<a href="mailto:carterweb@emory.edu">carterweb@emory.edu</a>	<a href="http://www.cartercenter.org">http://www.cartercenter.org</a>	“The Carter Center, in partnership with Emory University, is guided by a fundamental commitment to human rights and the alleviation of human suffering. It seeks to prevent and resolve conflicts, enhance freedom and democracy, and improve health.”
CBM	<a href="mailto:contact@cbm.org">contact@cbm.org</a>	<a href="http://www.cbm.org/">http://www.cbm.org/</a>	“CBM strives to remove the barriers that marginalise people with disabilities in the most disadvantaged societies in the world. It does this by working with partner organisations in these regions, by influencing policy at all levels and by responding to emergencies and natural disasters.”



Organization	Email	URL	Mission statement
Combat Blindness Foundation		<a href="http://www.combatblindness.org">http://www.combatblindness.org</a>	“We work to provide independence and opportunity to individuals through sight restoring surgery and other preventive measures.”
Dana Center for Preventive Ophthalmology		<a href="http://www.danacenter.org/">http://www.danacenter.org/</a>	“The Dana Center for Preventive Ophthalmology at the Johns Hopkins Wilmer Eye Institute, founded by Alfred Sommer, M.D., M.H.S., is a leader in global and domestic research on blindness prevention and the only World Health Organization collaborating center in the United States. Our center guides research-based programmatic activities and educates future leaders to alleviate unnecessary blindness worldwide.”
eyeSIGHT INTERNATIONAL	<a href="mailto:eyesightinternational@gmail.com">eyesightinternational@gmail.com</a>	<a href="https://sites.google.com/site/sightforhumanity/">https://sites.google.com/site/sightforhumanity/</a>	“eyeSIGHT is a non-governmental and non-profit international organization dedicated to human eyes. eyeSIGHT INTERNATIONAL is committed to the global effort for treating and preventing sight dysfunction. We work to provide and establish a more personal, direct link between international communities, professionals, and those in need. eyeSIGHT INTERNATIONAL is a service and guidance network driving vision welfare worldwide, advocating all ophthalmic professions, and globally uniting eyecare students.”

Organization	Email	URL	Mission statement
Eyes of the World Foundation		<a href="http://www.eyesoftheworldfoundation.org/">http://www.eyesoftheworldfoundation.org/</a>	“The Foundation is a non-profit organisation that helps visually impaired people without financial resources in poor countries to receive high-quality ophthalmic care through their local health services and to create the necessary conditions to reduce the incidence of eye diseases in these countries. It also seeks to raise awareness in our society of the deficiencies in basic healthcare suffered by these countries.”
Foundation Fighting Blindness	<a href="mailto:info@fightblindness.org">info@fightblindness.org</a>	<a href="http://www.blindness.org/">http://www.blindness.org/</a>	“The Foundation Fighting Blindness (FFB) was established in 1971 as the Retinitis Pigmentosa Foundation (RP Foundation) under the leadership of Gordon and Llura Gund and Ben and Beverly Berman and with the assistance of a passionate group of families, all driven to find treatments and cures for blinding retinal diseases that were affecting themselves or loved ones.”

Organization	Email	URL	Mission statement
Global Alliance of Eye Bank Associations	<a href="mailto:info@gaeba.org">info@gaeba.org</a>	<a href="http://www.gaeba.org/">http://www.gaeba.org/</a>	“The Global Alliance of Eye Bank Associations inc. is an internationally recognized association of eye bank associations. The Global Alliance supports the WHO’s Initiative for Medical Products of Human Origin, SDS/HIS (Special Service Delivery) and the Declaration of Istanbul on Organ Trafficking and Transplantation Tourism. As a not-for-profit, non-government-organization, The Global Alliance functions to provide peer and professional support, knowledge exchange, advocacy, vigilance, surveillance, and research and continual education opportunities to its members, in line with local, national and international recommended Standards of Practice.”
<i>Global Network NTD</i>	<a href="mailto:globalnetwork@sabin.org">globalnetwork@sabin.org</a>	<a href="http://www.globalnetwork.org/">http://www.globalnetwork.org/</a>	“Our mission is to make vaccines more accessible, enable innovation and expand immunization across the globe.” [Leave In? No direct eyecare information on site]

Organization	Email	URL	Mission statement
Helen Keller Foundation for Research and Education	<a href="mailto:lbeckwith@helenkellerfoundation.org">lbeckwith@helenkellerfoundation.org</a>	<a href="http://www.helenkellerfoundation.org">http://www.helenkellerfoundation.org</a>	“We are the Helen Keller Foundation. And we are now Helen Keller’s ears. We are her voice. We are her eyes. And now we hold in the palm of our hands, through science and enlightenment, a wellspring of possibilities. The possibilities to save sight, speech and hearing. The possibilities to change the world forever. To lead succeeding generations into a world of healing, of tolerance, of grace. As far as the eye can see and the spirit can imagine. The possibilities are endless to lead the world into a day where there will be no blind eye, no muted voice, no deafened ears.”
Helen Keller International	<a href="mailto:info@hki.org">info@hki.org</a>	<a href="http://www.hki.org/">http://www.hki.org/</a>	“Helen Keller International is dedicated to combating the causes and consequences of vision loss and making clear vision a reality for those most vulnerable to disease and who lack access to quality eye care.”
HelpMeSee	<a href="mailto:info@helpmeseesee.org">info@helpmeseesee.org</a>	<a href="https://www.helpmeseesee.org/">https://www.helpmeseesee.org/</a>	“The mission of HelpMeSee is to provide cataract surgery for every blind child and adult in the world who needs it regardless of where they live or how poor they may be.”

Organization	Email	URL	Mission statement
hiltonfoundation.org		<a href="https://www.hiltonfoundation.org/">https://www.hiltonfoundation.org/</a>	"...the Avoidable Blindness program consists of three initiative areas: 1) contributing to the global fight to eliminate trachoma by 2020; 2) increasing access to high-quality cataract surgery; and 3) strengthening the eye healthcare sector in these targeted intervention areas."
Himalayan Cataract Project	<a href="mailto:info@cureblindness.org">info@cureblindness.org</a>	<a href="https://www.cureblindness.org/">https://www.cureblindness.org/</a>	"We aspire to cure the mountain of global blindness, one patient at a time."
The International Agency for the Prevention of Blindness (IAPB)		<a href="https://www.iapb.org/">https://www.iapb.org/</a>	"IAPB was established as a coordinating, umbrella organisation to lead an international effort in mobilising resources for blindness prevention activities. IAPB aspired to link professional bodies, non-governmental organisations (NGOs), educational institutions and interested individuals with national programmes for the prevention of blindness."

Organization	Email	URL	Mission statement
International Centre for Eye Health	<a href="mailto:iceh@iceh.org.uk">iceh@iceh.org.uk</a>	<a href="http://www.iceh.org.uk">www.iceh.org.uk</a>	“We are a Research and Education group based at the London School of Hygiene & Tropical Medicine (LSHTM). We work to improve eye health and eliminate avoidable visual impairment and blindness, with a focus on low income populations. We aim to do this through the development of policy; providing evidence for programme planning and advocacy; sensitizing key stake holders and professionals; developing and building capacity through our links programme; working with and supporting young researchers and developing partnerships for research and by training leaders in the prevention of blindness.”
International Council for Education of People with Visual Impairment	<a href="mailto:sgicevi@vsnl.net">sgicevi@vsnl.net</a>	<a href="http://www.icevi.org/">http://www.icevi.org/</a>	“In recognition of the continuing global challenges in achieving access to quality education for the millions of out-of-school children with blindness and partial sight, the International Council for Education of People with Visual Impairment (ICEVI) is a membership organisation with a mission to promote access to inclusive, equitable, and quality education for all people with visual impairment.”

Organization	Email	URL	Mission statement
International Diabetes Federation		<a href="https://www.idf.org/our-activities/care-prevention/eye-health.html">https://www.idf.org/our-activities/care-prevention/eye-health.html</a>	
International Eye Foundation	<a href="mailto:info@iefusa.org">info@iefusa.org</a>	<a href="http://www.iefusa.org/">http://www.iefusa.org/</a>	“IEF’s mission is eliminate preventable and treatable blindness by increasing affordability and access to quality, comprehensive and sustainable eye care services worldwide. We change how eye care is delivered by changing systems at eye hospitals and clinics by transforming existing eye care resources to provide quality eye care in an efficient, productive, and sustainable manner leading to greater numbers of patients receiving sight-saving treatment and surgery.”
International Trachoma Initiative	<a href="mailto:iti@taskforce.org">iti@taskforce.org</a>	<a href="http://trachoma.org/">http://trachoma.org/</a>	“In 1998, the Edna McConnell Clark Foundation and Pfizer Inc. founded the International Trachoma Initiative (ITI) to help answer the World Health Organization’s call to eliminate blinding trachoma by 2020 . The staff of ITI are committed to achieving this goal, working closely with national programs and other <i>partners</i> .”
<i>internationalsight.com</i>	<a href="mailto:contact@internationalsight.com">contact@internationalsight.com</a>	<a href="https://www.internationalsight.com">https://www.internationalsight.com</a>	[Members Only link]

Organization	Email	URL	Mission statement
isixtech		<a href="http://isixtech.com/projects/chef/index.php/about/">http://isixtech.com/projects/chef/index.php/about/</a>	“Mission: To facilitate quality, affordable, accessible and sustainable comprehensive health and education services, inclusive rehabilitation of persons with disabilities through integrated approaches and partnerships.”
Kilimanjaro Centre for Community Ophthalmology (KCCO)	<a href="mailto:kcco@kcco.net">kcco@kcco.net</a>	<a href="http://www.kcco.net/">http://www.kcco.net/</a>	“The Kilimanjaro Centre for Community Ophthalmology (KCCO) was established in Moshi, Tanzania in late 2001 following letters of intent between the Executive Director of the Good Samaritan Foundation and Vice Chancellor of Tumaini University and Drs. Paul Courtright & Susan Lewallen of the KCCO. The KCCO is dedicated to the elimination of avoidable blindness through programmes, training, and research focusing on the delivery of sustainable and replicable community ophthalmology services. The KCCO is co-directed by Dr. Paul Courtright, and Dr. Susan Lewallen. The KCCO exists as a centre within Good Samaritan Foundation.”



Organization	Email	URL	Mission statement
Lavelle Fund for the Blind		<a href="http://www.lavellefund.org/">http://www.lavellefund.org/</a>	“The Lavelle Fund supports programs that help people who are blind and visually impaired lead independent, productive lives, together with eye care programs working to prevent and treat vision loss. Programs in the Catholic tradition of serving the disadvantaged are of special interest.”
Light for the World	<a href="mailto:eu@light-for-the-world.org">eu@light-for-the-world.org</a>	<a href="http://www.light-for-the-world.org">http://www.light-for-the-world.org</a>	“LIGHT FOR THE WORLD is dedicated to ensuring the rights of persons with disabilities in developing countries, without discrimination of gender, ethnicity, social group or religion.”
Lighthouse Guild	<a href="mailto:info@lighthouse.org">info@lighthouse.org</a>	<a href="http://www.lighthouse.org/">http://www.lighthouse.org/</a>	“ <i>Lighthouse Guild</i> is the leading not-for-profit healthcare organization dedicated to addressing and preventing vision loss through coordinated vision and health services. With Lighthouse Guild, people who are at risk for, or affected by, vision loss have access to the resources necessary to lead full, independent and productive lives.”

Organization	Email	URL	Mission statement
Lions International	<a href="mailto:districtadministration@lionsclubs.org">districtadministration@lionsclubs.org</a>	<a href="http://www.lionsclubs.org">http://www.lionsclubs.org</a>	“Since Lions Clubs International was founded in 1917, Lions have worked on projects designed to prevent blindness, restore eyesight and improve <i>eye health</i> and eye care for hundreds of millions of people worldwide.”
lvpei.org	<a href="mailto:help@lvpei.org">help@lvpei.org</a>	<a href="http://www.lvpei.org/">http://www.lvpei.org/</a>	“The mission of L V Prasad Eye Institute is to be a centre of excellence in Eye care services, basic and clinical research into eye diseases and vision-threatening conditions, training, product development, and rehabilitation for those with incurable visual disability, with a focus on extending equitable and efficient Eye care to underserved populations in the developing world.”

Organization	Email	URL	Mission statement
Magrabi Foundation		<a href="http://magrabi.org/">http://magrabi.org/</a>	“Mission : To establish replicable sustainable model for integrated eye care & sight saving and to empower community members with their rights in eye health & restored vision. Find and disseminate knowledge on eye health determinants through evidence-based approach. Provide quality eye care in large volume for all societal strata. Rehabilitate and integrate visually disabled persons. Build capacity of eye care providers & allied persons through medical education and professional & surgical training. Influence policies that shape eye care through interacting with local authorities and networking with partner organizations on national, regional & international levels.”
Mission Eyes Network		<a href="http://www.missioneyes.net/">http://www.missioneyes.net/</a>	“Connecting eyecare professionals for work, training, mission & ministry . . .”
Nigah Eye Care Society	<a href="mailto:nigahcare@yahoo.com">nigahcare@yahoo.com</a>		“NGO based in rural Pakistan , focused mainly on cataracts.”

Organization	Email	URL	Mission statement
Operation Eyesight Universal	<a href="mailto:info@operationeyesight.com">info@operationeyesight.com</a>	<a href="http://www.operationeyesight.com/">http://www.operationeyesight.com/</a>	“Operation Eyesight Universal is an international development organization working to eliminate avoidable blindness with the help of donations from people like you, and support from service clubs, foundations, corporations and governments.”
Ophtalmo Sans Frontieres	<a href="mailto:osf@wanadoo.fr">osf@wanadoo.fr</a>	<a href="http://www.opht-sans-frontieres.org">http://www.opht-sans-frontieres.org</a>	Ophthalmologists Without Borders
Orbis	<a href="mailto:info@orbis.org">info@orbis.org</a>	<a href="http://www.orbis.org/">http://www.orbis.org/</a>	“We are an international non-profit bringing people together to fight avoidable blindness. With our network of partners we mentor, train and inspire local teams to fight blindness in their own communities.”

Organization	Email	URL	Mission statement
Organisation for the Prevention of Blindness (OPC)	<a href="mailto:opc@opc.asso.fr">opc@opc.asso.fr</a>	<a href="http://www.opc.asso.fr/?lang=en">http://www.opc.asso.fr/?lang=en</a>	<p>“The OPC (Organisation pour la Prévention de la Cécité - Organisation for the Prevention of Blindness) is an international NGO with specific expertise in ocular public health. It fights to preserve the sight of as many people as possible in the most deprived populations in French-speaking developing countries. The OPC works with individuals, health authorities and universities of the countries in which it operates. Training is at the heart of its actions : this involves sharing knowledge, expertise and medical technologies, adapted to local conditions, in order to achieve an autonomous operation of the structures that are set up.”</p>
Perkins School for the Blind (Perkins International)		<a href="http://www.perkins.org/">http://www.perkins.org/</a>	<p>“Our mission is to ensure that all underserved children and young adults with visual impairment receive a high-quality education that enriches their lives and prepares them for an active role in their families, schools and communities.”</p>

Organization	Email	URL	Mission statement
Prevention of Blindness Union	<a href="mailto:info@pbunion.org">info@pbunion.org</a>	<a href="http://www.pbunion.org/">http://www.pbunion.org/</a>	“Mission: To support, coordinate, collaborate and advocate activities in the field of comprehensive eye care (promotion, preventive, curative and rehabilitation) with all stakeholders (such as Governments, Non-Governmental Development Organizations (NGDO), regional and international organizations, professional bodies and institutions).”
Retina Research Foundation	<a href="mailto:rrf@retinaresearchfnd.org">rrf@retinaresearchfnd.org</a>	<a href="http://www.retinaresearchfnd.org">www.retinaresearchfnd.org</a>	“The mission of the Retina Research Foundation is to reduce retinal blindness worldwide by funding programs in research and education. As a public charity, RRF raises funds from the private sector and the investment of its endowment funds.”
S.E.E. International: Bringing Sight to Life		<a href="http://www.seeintl.org/">http://www.seeintl.org/</a>	“SEE International provides sustainable medical, surgical, and educational services through volunteer ophthalmic surgeons with the objectives of restoring sight and preventing blindness to disadvantaged individuals worldwide.”
Seeing is Believing	<a href="mailto:seeingis.believing@sc.com">seeingis.believing@sc.com</a>	<a href="http://seeingisbelieving.org/">http://seeingisbelieving.org/</a>	

Organization	Email	URL	Mission statement
Seva Foundation		<a href="http://www.seva.org/">http://www.seva.org/</a>	<p>“Mission Seva is a Sanskrit word meaning service to others. Seva’s work is made possible by the generosity of donors and volunteers inspired by the spirit of service. Since 1978, Seva has been a leading innovator in building partnerships that deliver cost-effective, culturally-informed health services for some of the world’s most vulnerable -- including women, children, and indigenous peoples. Seva finds and strengthens dedicated, capable partners. Seva’s goal is project sustainability and self-reliance so our partners continue delivering services long after our involvement has ended. In Asia, Africa, and Latin America Seva helps end preventable blindness, and in the United States supports Native Americans in re-building healthy, diabetes-free communities.”</p>

Organization	Email	URL	Mission statement
Sight for All		<a href="http://sightforall.org/">http://sightforall.org/</a>	“Mission: To determine, through collaborative research, the magnitude and causes of visual loss in local communities and partnering countries. To engage and assist these communities in prioritising eye health projects. To instill knowledge and skills to eye health professionals and equip eye centres to deliver our Purpose : Sight for All. To raise awareness and support for our cause.”
Sight for Souls	<a href="mailto:kempenj@yahoo.com">kempenj@yahoo.com</a>	<a href="https://www.sightforsouls.org/">https://www.sightforsouls.org/</a>	“Sight for Souls is a development organization aiming "To transform lives and communities in Ethiopia through the gift of sight and leadership development in eye care"
sightlife.org	<a href="mailto:info@sightlife.org">info@sightlife.org</a>	<a href="http://www.sightlife.org">http://www.sightlife.org</a>	SightLife serves as an international nongovernmental organization (INGO) to eliminate corneal blindness.
Sightsavers	<a href="mailto:info@sightsavers.org">info@sightsavers.org</a>	<a href="http://www.sightsavers.org">http://www.sightsavers.org</a>	“We work to eliminate avoidable blindness and promote the rights of people with disabilities.”
The Fred Hollows Foundation	<a href="mailto:fhf@hollows.org">fhf@hollows.org</a>	<a href="http://www.hollows.org/">http://www.hollows.org/</a>	“The Fred Hollows Foundation now works in more than 25 countries and has restored sight to over two million people worldwide.”



Organization	Email	URL	Mission statement
The Glaucoma Foundation		<a href="http://www.glaucomafoundation.org">www.glaucomafoundation.org</a>	“The Glaucoma Foundation is an international not-for-profit organization dedicated to eradicating blindness from glaucoma by funding critical research programs aimed at finding new treatments and seeking cures for glaucoma.”
The Mectizan Donation Program		<a href="http://www.mectizan.org/">http://www.mectizan.org/</a>	“The MDP secretariat is a partner of the <i>Task Force for Global Health</i> , and was established to provide medical, technical and administrative oversight of the donation of Mectizan.”
Thea Corporate Foundation		<a href="http://www.laboratoires-thea.com/en/foundation-patronage">http://www.laboratoires-thea.com/en/foundation-patronage</a>	“The Thea Corporate Foundation aims to promote or assist, in France and abroad, humanitarian or general interest initiatives to aid the fight against blindness and improve eye health.”

Organization	Email	URL	Mission statement
United Front Against River Blindness	<a href="mailto:ufar@riverblindness.org">ufar@riverblindness.org</a>	<a href="http://riverblindness.org/">http://riverblindness.org/</a>	“As a relatively new organization and through our initial involvement in the CDTI Kasongo, UFAR’s primary goal is to become a recognized and respected member of the coalition of international, national and local organizations currently involved in concerted efforts to eliminate onchocerciasis as a major public health and socioeconomic problem in the Democratic Republic of the Congo.”
<a href="http://uniteforsight.org">uniteforsight.org</a>	<a href="mailto:rturkel@uniteforsight.org">rturkel@uniteforsight.org</a>	<a href="http://www.uniteforsight.org">http://www.uniteforsight.org</a>	“As a pioneer of <i>responsible</i> healthcare delivery, unite for sight serves, empowers, and mentors organizations and individuals to provide high-quality <i>outcomes</i> .”
Vision Aid Overseas		<a href="http://www.visionaidoverseas.org/">http://www.visionaidoverseas.org/</a>	“No one lives in poverty because of poor eyesight; no one lives with poor eyesight because of poverty.”
Vision Impact Institute		<a href="http://visionimpactinstitute.org/">http://visionimpactinstitute.org/</a>	“The mission of the Vision Impact Institute is to raise awareness about the importance of healthy vision, including the socio-economic impact of Uncorrected Refractive Errors (URE) and quality of life benefits of visual correction.”

Organization	Email	URL	Mission statement
Vision in Practice	<a href="mailto:information@visioninpractice.org">information@visioninpractice.org</a>	<a href="http://www.visioninpractice.org/">http://www.visioninpractice.org/</a>	“The mission of Vision in Practice is service to humanity through elimination of avoidable blindness.”
VisionSpring		<a href="http://www.visionspring.org">www.visionspring.org</a>	“VisionSpring was founded on a very basic principle: ‘If you can’t see, you can’t work.’ In the years since, VisionSpring has broadened the scope of our work to include the distribution of prescription eyeglasses with the understanding that ‘If you can’t see, you can’t learn.’”
Welfare Association of Eye HealthCare Organizations (WAEHCO)	<a href="mailto:wahco_ngos@yahoo.com">wahco_ngos@yahoo.com</a>		“WAEHCO mission is to meet the needs of needy by delivering essential Eye healthcare services to people with poor eye sight and to against visual impairment and also training our network members to eye healthcare services to serve humanity for mankind.”
WHO Onchocerciasis	<a href="mailto:dirapoc@oncho.afro.who.int">dirapoc@oncho.afro.who.int</a>	<a href="http://www.who.int/apoc/">http://www.who.int/apoc/</a>	“Strategic Options and Alternative Treatment Strategies for Accelerating Onchocerciasis Elimination in Africa.”

Organization	Email	URL	Mission statement
World Blind Union		<a href="http://www.worldblindunion.org">www.worldblindunion.org</a>	“The World Blind Union (WBU) is the internationally recognized organization, representing the 285 million blind and partially sighted persons in 190 member countries. We are the voice of the blind, speaking to governments and international bodies on issues concerning blindness and low vision in conjunction with our members.”
World Health Organization (WHO)	<a href="mailto:info@who.int">info@who.int</a>	<a href="http://www.who.int/en/">http://www.who.int/en/</a>	“ <i>Universal eye health: a global action plan 2014–2019</i> ” <a href="http://www.who.int/entity/blindness/AP2014_19_English.pdf">http://www.who.int/entity/blindness/AP2014_19_English.pdf</a>

# Index

## A

Academic research institutions, 30  
Accountability, 124  
Accreditation Council for Graduate Medical Education (ACGME), 74, 138  
Acute malnutrition, 133  
Acute water insecurity, 128, 129  
Acute-onset natural disasters, 133  
Adoption models, 86  
Adults, neurological disorders, 44  
Africa  
  doctors from developed country  
    in, 209, 210  
  governance, 205  
  growing economy, 205  
  healthcare considerations, 207  
  infant mortality, 205  
  medical humanitarian aid, 208, 209  
  myths, 203, 204  
  poverty, decrease in, 205  
  pre-travel considerations  
    food, 206–207  
    history, 206  
    language and colonialism, 206  
  technology, 205  
  travel tips, physicians, 211  
    corruption, 211  
    fake pharmaceuticals, 212  
    HIV infection, 212  
African Ophthalmology  
  Council (AOC), 250  
African traditional medicine, 103  
Air evacuation, 143  
Allopathic medicine, 104, 112  
Alma-Ata Declaration, 23  
Alzheimer's disease, 245

American Academy of Ophthalmology (AAO), 249, 257, 259  
American College of Healthcare Executives (ACHE), 158  
American Medical Association (AMA), 155  
American-Polish Relief Expedition, 146  
American-Armenian refugee hospital, 146  
Ancient Chinese medicine, 105  
Antenatal care (ANC), 10  
Anti-malarial prophylaxis, 36  
Antiretroviral treatment (ART), 14  
Anxiety disorders, 36  
Arabian unani, 103  
Aravind Eye Care System (AECS), 3, 12, 261  
Asian Pacific Academy of Ophthalmology (APAO), 250  
Aurolab, 261

## B

Bi-directional collaboration, 13–14  
Biochemical monitoring, 129  
B scan capability or pachymetry, 260

## C

Cairo, 216  
Cardiovascular diseases, 25  
Caribbean  
  customs, musics and arts, 225, 226  
  diaspora, 225  
  economy and politics, 224  
  food, 226  
  geography, flora, and fauna, 224  
  global health issues, 228  
  healthcare/humanitarian, 227

- Caribbean (*cont.*)  
 history, 223, 224  
 languages, 225  
 populations, 225  
   in urban centers, 223  
 religion, 226
- Cataract surgery, 3, 199
- Catholic Health Association (CHA), 55–58
- Catholic Social Teaching, 64
- Center for Disaster and Humanitarian Assistance, 139
- Centers for Disease Control and Prevention (CDC), 7
- Charity, 67
- Chikungunya, 45
- Childhood  
 anemia, 11  
 diarrhea illness, 5
- China  
 business, by building relationship, 192  
 challenges in, migrant worker health, 193  
 common diseases and health factors, 192  
 food  
   eating habits, 189, 190  
   regional differences in, 189  
 gender roles and relations, 191  
 geography, 188  
 healthcare, 190  
 language  
   mandarin Chinese, 189  
   monolithic language, 188  
 medical volunteering, 191  
 politics and surveillance, 193
- Chinese medicine, 104, 106, 107, 110, 112, 113
- Chinese Ophthalmological Society (COS), 249
- Chronic medical illnesses, 36
- Chronic non-communicable diseases, 25
- Civil military operations, 139
- Clean drinking water, 3
- Clean Needle Technique protocols, 106
- Climate change, 128
- Clinical protocols, 76
- Clinicians, 243, 245
- Cloud services, 91
- Cluster approach, 122, 123
- Cluster lead, 124
- Communicable diseases, 24, 36, 133
- Communication, 244
- Community based organizations (CBOs), 178
- Community partnerships, 28
- Complementary and alternative medicine (CAM), 106
- Consortium of Universities for Global Health (CUGH), 26
- Council of Medical Specialty Societies, 250
- Country-level clusters, 123
- Crude mortality rate (CMR), 132
- Cultural competency, 130
- Culturality, 245
- Cultural sensitivity  
 communication, 182  
 cultural understanding, 183  
 communication style, 183  
 decision making, in patients, 184  
 gender issues, 184  
 language barrier, 183  
 other issues, 184, 185  
 religion, 184  
 timeliness, 183  
 trust and belief, modern  
   healthcare, 184  
   technology and infrastructure, 182
- Cultural value differences, 77
- Culture shock, 77
- Cyprus, 216
- D**
- DeCamp, 57
- Democracy, conflict and humanitarian assistance (DCHA), 141
- Demographic and Health Survey (DHS), 5
- Dengue, 44
- Dental evaluations, 36
- Department of Defense (DOD), 137
- Deployment  
 living environment/transportation, 40  
 safe food and water, 41  
 vector avoidance, 41
- Deutsche Ophthalmologische Gesellschaft (DOG), 249
- Developing countries, 21
- Diarrhea-inducing enteric disease pathogens, 21
- Dilated indirect ophthalmoscopy, 260
- Disaster, 132, 155–156  
 budget, 141  
 education and training, 162  
 medical system, 155  
 planning, 162  
 preparedness and response system, 166, 167  
 response planning, 128
- Disaster Assistance and Response Teams (DART), 141
- Disaster medicine

education and training, 161  
 public health, 154, 155, 157, 158  
*Disaster Medicine and Public Health  
 Preparedness and Prehospital  
 Disaster Medicine*, 164  
 Discernment, 69  
 Distributive justice, 67, 68  
 Duffle bag medicine, 52

**E**

Eastern Mediterranean  
 climate, 217–218  
 culture and religion, 218  
 Cyprus, 216  
 Egypt, 216  
 geographic region, 215  
 Greece, 216  
 health issues, 218  
 Israel, 216  
 Lebanon, 216  
 Libya, 217  
 medical volunteering, 219, 220  
 Palestine, 217  
 Syria, 217  
 Turkey, 217  
 Egypt, 216  
 Emergency Relief Coordinator (ERC), 124  
 End user support, 95–96  
 Entomological inoculation rate (EIR), 10  
 Environmental disinfection, 43  
 Ethical Challenges in Short-Term Global  
 Health Training, 56, 58  
 Ethical frameworks, for STIMs, 54  
 Ethiopian telemedicine services, 86  
 Ethnocentric disposition, 77  
 Ethnocentrism, 77  
 European Society of Ophthalmology  
 (SOE), 250  
 Evidence-based medicines, 164  
 Expanded program for immunization  
 (EPI), 10, 13  
 Extreme resource poor (ERP) countries, 83,  
 84, 86–88  
 Eye care providers, 259

**F**

Faith based organizations  
 (FBOs), 133, 177  
 Farmers vs. herders, 128  
 Federal Emergency Management Agency  
 (FMEA), 141  
 Female community health workers, 6

5th International Conference on Healthcare  
 System Preparedness and Response  
 to Emergencies & Disasters, 158  
 FOCUS team, 200  
 Folk medicine, 105  
 Food insecurity, 129  
 Food security, 129–130  
 For-profit organizations (FPO), 175, 178  
 Foster interactive learning, 28

**G**

Gap analysis/asset assessment, 57  
 Gastroenteritis, 43  
 Gender inequality, 6  
 Geneva Conventions, 129  
 Glaucoma, 255, 256  
 Global community, 64  
 Global health, 15  
 bi-directional collaboration, 13–14  
 bottom-up approach, 23  
 definition, 1, 19, 23, 74  
 dialog and collaboration, 267, 268  
 disparities, in US, 269  
 diversity, 265, 266  
 educational framework, 28  
 financial sustainability, 12  
 future health professionals, 20  
 future states, 29  
 goals, 266  
 healthcare professionals, 19, 29  
 adaptation, 9–11  
 complexity of barrier to access, 4–8  
 defining success, 2–4  
 evaluation, 9–11  
 program planning, 8–9  
 reverse innovation, 13–14  
 towards sustainability, 11–13  
 injuries, 29  
 medical immersion, 55  
 non-communicable diseases, 29  
 professional behavior  
 alignment of expectations, 78  
 pre-departure orientation  
 curriculum, 79  
 professionalism honor pledge, 79  
 selection of participants, 79  
 professionalism, definition, 74  
 stakeholders, 27  
 teaching learning cycle  
 clinical care, 268  
 professional education, 269  
 sustainable learning, 268  
 unprofessional behavior, 75–76

- Global health (*cont.*)
- causes of, 76
  - consequences of, 78
  - culture shock, 77
  - differences in cultural values, 77
  - disengagement, 78
  - doing harm, 78
  - eroding trust, 78
  - questionable motivations, 76, 77
- Global health education, 20, 30
- chronic non-communicable diseases, 25
  - educational institutions, 26
  - international health, 25
  - interprofessional education, 27
  - low- and middle- income countries, 27
  - non-communicable diseases, 24
- Global Health Education Consortium (GHEC), 21
- Global health engagement(s), 137
- Global health missions, 64, 65
- religious foundations, 65, 70
  - solidarity, 66
- Global health organizations, 173
- FPO, 175
  - government organizations, 174
  - NPOs, 174
- Global health security, 154, 158
- definition, 154
  - goals, 167, 168
  - infectious disease, catastrophic impacts, 153
  - objectives, 167, 168
  - threats to, 154
- Global health service, 104, 110, 114–116
- Global interconnectedness, 267
- Global ophthalmology
- childhood blindness, 254, 255
  - eye protection, in work environments, 255
  - infections, vision impairment, 253
  - insurmountable problem, 257
  - maternal infections, 254
  - screening of, premature babies, 256
  - surgeries, 256
  - utilization of telemedicine, 256
- Government agencies, 133
- Governmental organizations, 174
- IGOs, 175, 176
  - international development and aid agencies, 176
- Greece, 216
- Gross domestic product (GDP), 10
- H**
- Hand hygiene, 43, 47
- Health action, 132
- Healthcare, 109, 110, 132
- interprofessional collaboration, 28
  - issues facing in Latin countries, 246
  - professionals, 1, 15, 53
  - providers, 8, 165
  - quality of care, 7
  - workers, 2
- Healthcare workers (HCW), 35, 36
- violent attacks on, 37
- Health professionals, 74, 155–156
- Health responders, 160
- Health security, *see* Global health security
- Hemorrhagic viruses, 47
- Herbal/ethnobotanical treatment, 103
- Herbal medicine, 107
- High-income countries, 21, 22
- Holistic clinicians, 110
- Hope, 245
- Hospitality, 51, 60
- Host community, 74
- Human immunodeficiency virus (HIV), 7
- Human Resources for Health (HRH), 29
- Humanitarian assistance and disaster relief (HA/DR), 137, 139, 140
- Humanitarian Charter and Minimum Standards, 125, 126
- Humanitarian community, 119, 120
- Humanitarian Coordinator's (HC) leadership, 122–124
- Humanitarian disaster, 119, 123
- cluster approach, 122
  - accountability, 124
  - country level, 123
  - global level, 123
  - responsibilities, 124
  - food security and nutrition, 129
  - health action, 132, 133
  - shelter and settlement, 130, 131
  - Sphere Project, 124, 125
  - Humanitarian Charter and Minimum Standards, 126
  - response to, 127
  - United Nations Cluster Approach, 122
  - water insecurity, 128
  - water supply, 127, 128
- Humanitarian medicines, 160
- Hybrid approach, 92, 93
- I**
- India
- climate, 195
  - economy, 197
  - food, 197
  - health aids in, 196



infrastructure, 197  
 language, 195  
 major cities in, 195–196  
 population, 197  
 transportation, 196  
 Indian Ayurvedic medicine, 103  
 Indoor residual spraying (IRS), 10  
 Infants  
   malnutrition, 129  
   mortality, 205, 260  
 Infectious diseases, 21  
   chikungunya, 45  
   dengue, 44  
   hand hygiene, 43  
   malaria, 43  
   yellow fever, 45, 46  
   zika, 44, 45  
 Influenza, 46, 47  
 Information completeness, 97  
 Information Technology, 96  
 Injuries, 133  
 Input indicators, 9, 10  
 Insect protection, 41  
 Insecticide treated nets (ITN), 7, 10  
 Institute of Medicine (IOM), 23  
 Institutions of health professions, 19  
 Integrated Management of Childhood  
   Illness (IMCI), 13  
 Inter-Agency Standing Committee  
   (IASC), 123  
 Interdisciplinary Certificate in Disaster &  
   Global Health, 159  
 Interdisciplinary collaboration, 27  
 Intergovernmental organizations  
   (IGOs), 22, 176  
 Intermittent preventative treatment (IPT), 10  
 International Agency for the Prevention of  
   Blindness (IAPB), 250  
 International Commission of the Red Cross  
   (ICRC), 142  
 International Conference on Primary  
   HealthCare, 22  
 International Council of Ophthalmology  
   (ICO), 248, 259  
 International development and aid  
   agencies, 176  
 International health, 20, 21  
   infectious diseases, 21  
   morbidity and mortality, 21  
   parachuting, 22  
   public health issues, 20  
   top-down flow, 21  
   tropical medicine, 22  
 International Medical Surgical Response  
   Teams (IMSURTs), 141

International Narcotics Control Board  
   (INCB), 36  
 International non-governmental organizations  
   (INGO's), 248, 250  
 International Ophthalmology,  
   volunteering, 250  
 International Organization, 249  
 International service, 199  
 International travel, 38  
 Interprofessional collaboration, 28, 29  
 Interprofessional education, 27  
 Interprofessional global health, 29  
 Interprofessionalism, 111  
 Intraocular lenses (IOLS), 12, 199, 256, 261  
 Israel, 216  
 Israeli Defense Forces (IDF), 145

## J

Japanese Ophthalmological Society (JOS),  
   249  
 Justice, 67

## L

Language, 243, 244  
 Lazy eye/amblyopia, 255  
 Leadership development program (LDP), 211  
 Lebanon, 216  
 Liaison Committee on Medical Education  
   (LCME), 138  
 Libya, 217  
 Libyan Dinar, 217  
 Life support networks, 89–90  
 Lions Aravind Institute of Community  
   Ophthalmology (LAICO), 262  
 Low- and middle-income countries (LMICs),  
   4, 19, 24, 30, 51, 52  
   academic research, 27  
   intergovernmental organizations, 22  
 Lower-income countries, 21

## M

Malaria, 40, 43  
   control intervention, 10  
 Malaria case management (MCM), 10  
 Malnutrition, 21, 129, 130  
 Mandarin Chinese, 189  
 Maternal and child health (MCH), 21  
 Measles/mumps/rubella vaccine (MMR), 254  
 Medical and ophthalmic training, in India, 260  
 Medical brigade/procedure-based models, 52  
 Medical Civic Action Programs  
   (MEDCAPs), 147

- Medical clinicians, 109
  - Medical mission trips, 52
  - Medical practitioners, 114
  - Medical Professionalism Project (MPP), 74
  - Medical professionals, 64, 69
  - Medical responders, 159
  - Medical Standard of Care (MSC), 166
  - Medical volunteering, 191
  - Medical vs. public health ethics, 165
  - Medicine, 243, 244
  - Memorandum of Understanding (MoU), 8
  - Meta-leadership, 121, 122, 124, 127, 130–132, 134
  - Micronutrient deficiency, 129
  - Middle East Africa Council of Ophthalmology (MEACO), 250
  - Military capacities, 142
  - Military Humanitarian Medical Operations (MHMOs), 147
  - Military medicine and global health
    - advanced trauma management, 138
    - aerospace medicine, 138
    - in humanitarian missions, 140
    - hyperbaric treatment, 138
    - indirect services, 142
    - MEDCAPs, 146, 147
    - medical research, 137
    - military medical resources, 142
    - military structures, 141
    - multi-service air evacuation and multi-specialty, 142
    - neutral entities, 142
  - Minimum Standards of Humanitarian Response, 134
  - Misconception, 244
  - Mobile Army Support Hospital (MASH), 145
  - Modern urban hospitals, 21
  - Modern warfare, 120
  - Multi drug resistant organisms, 43
  - Multiple international disasters, 157
  - Multiple transnational organizations, 20
  - Multi-service geographic combatant commands, 141
  - Multi-specialty medical organizations, 250
  - Mycobacterium tuberculosis infections (MTB), 47
- N**
- National Bioterrorism and Curriculum Development Program (BTCDP), 163
  - National Center for Disaster Medicine and Public Health (NCDMPH), 156
  - National Disaster Life Support Foundation, 155
  - National Health Service, 105
  - Natural All-Hazards Preparedness Board, 163
  - Natural disasters, 120
  - Nigeria, 199
  - Non-communicable diseases (NCDs), 24
  - Non-Governmental Organizations (NGOs), 7, 119, 133, 137, 160, 176, 177
  - Non-profit organizations (NPOs), 174, 175
    - CBOs, 178
    - FBOs, 177
    - NGOs, 176, 177
  - Not-for-profit agencies, 84
  - Nutrition, 129–130
- O**
- Office for Coordination of Humanitarian Affairs (OCHA), 145
  - Office of Foreign Disaster Assistance (OFDA), 141
  - Onchocerca volvulus, 254
  - Onchocerciasis, 254
  - Open angle glaucoma, 256
  - Open Street Map, 5
  - Outcome indicators, 9, 11
- P**
- Palestine, 217
  - Pan-American Association of Ophthalmology (PAAO), 250
  - Participants, 54, 74
  - Patient–doctor interactions, 244
  - Patient–doctor relationships, 243
  - Patient–practitioners, 109, 112
  - Personal protective equipment (PPE), 42
  - Person-centered approach, 120
  - Phacoemulsification, 260
  - Physician Charter framework, 75
  - Physician patient relationships, 245
  - PlayPump, 3, 4
  - Pluralistic model, 112
  - Policymakers, 154
  - Pop-up medical clinics, 52
  - Post exposure prophylaxis (PEP), 38, 42
  - Postgraduate health professionals, training for, 19
  - Post-traumatic stress disorders, 36
  - Poverty, 129
  - Pre-deployment preparation
    - know the country/area/culture, 37, 38
    - personal health, 36, 37
    - unexpected/travel literacy, 38

Premature infants, 14  
 President's Emergency Plan for AIDS Relief (PEPFAR), 7–8  
 Prevention and Access to Care and Treatment (PACT), 14  
 Prevention of mother to child transmission (PMTCT), 10  
 Primary HealthCare, 22  
 Process indicators, 9–11  
 Professional behavior  
   alignment of expectations, 78, 79  
   pre-departure orientation curriculum, 79  
   selection of participants, 79  
 Professionalism, 80  
   global health, 75  
     definition, 74  
     patient autonomy, 75  
     primacy of patient welfare, 74  
     social justice, 75  
   honor pledge, 79  
   in medicine, 74  
   principles of, 74  
 Psychological stability, 36  
 Public health, 120, 154  
   interventions, 25  
   malnutrition, 129  
   shelter, 131  
   water supply, 128  
 Public transportation, 5  
 Pulse Polio Immunization (PPI), 6

## Q

Questionable motivations, 76

## R

Recognition theory, 59  
 Red Cross movements, 133  
 Religious foundations  
   cultural training, 64  
   global health missions, 65, 70  
 Respect, defined, 245  
 Respiratory infections  
   influenza, 46  
   tuberculosis, 47  
 Reverse innovation, 13–14  
 Rights-based approach, 120  
 Roll Back Malaria (RBM), 9  
 Roman Catholicism, 69  
 Royal College of Ophthalmologists (RCO), 249

## S

Safe excreta disposal, 128  
 Sanitation programs, 128  
 School screening programs, 6  
 Sectoral groups, 123  
 Self-care/medical practices, 109  
 Semicolonial model, 22  
 Sexual orientation, 243  
 Shamanic healing, 103  
 Shamanic medicine, 103  
 Shelter, 130, 131  
 Short-term medical immersion (STMI), 51–53  
   benefits, 54  
   cultivating friendship, 60–61  
   definition, 52–54  
   ethical frameworks, 54–58  
   recognition as moral framework, 58–60  
   unethical models, 52  
 Short-Term Medical Mission Trips, Recommendations for Practice, 56  
 Short-term medicine, 52  
 Skepticism, 110  
 Smart Traveler Enrollment Program (STEP), 38  
 Social justice, 68  
 Societe Francaise d'Ophthalmologie (SFO), 249  
 Solidarity, 66–68  
 Solid-waste management, 128  
 Spanish language, 244  
 Sphere Project, 125  
 Sponsor institutions, 74  
 Stakeholders, 4, 85  
 STMI, *see* Short-term medical immersion  
 Sub-Saharan Africa (SSA), 9  
   malaria morbidity, 10  
 Sun protection, 41  
 Sustainability, 22  
 Sustainable learning, 268  
 Syria, 217  
 Syrian American Medical Society (SAMS), 219

## T

Technical service quality, 94–95  
 Technology Acceptance Model (TAM), 85  
 Telecardiology, 85  
 Telecommunications networks, 90–95  
 Teledermatology, 85  
 Telemedicine, 88, 92–94  
   adoption, 83–86  
   benefits of, 84  
   client/host model, 96  
   comprehensive ease of use, 96, 97

- Telemedicine (*cont.*)  
 conventional medical approaches, 85  
 in developed countries, 83  
 in developing countries, 88  
 end user support, 95, 96  
 extreme resource poor countries, 83  
 Haiti case study, 86–87  
 information completeness, 97  
 infrastructure, 89  
 life support networks, 89, 90  
 telecommunications networks, 90–93  
 resources, 88, 89  
 services, 91  
 technical factors, 87  
 technical service quality, 94, 95
- Telepathology, 85
- 3D modelling visualization tools, 92, 93
- Tobacco consumption, 25
- Top-down Western-modal, 31
- Tourism, 53
- Traditional Chinese Medicine (TCM),  
 103–105
- Traditional medicine (TM), 103, 104, 111  
 coexistence of healthcare systems,  
 109–113  
 contrasting allopathic and, 104–106  
 finding commonality, 108–109  
 healthcare as political activism, 107–108  
 learning experience, 113–115  
 opportunity to share, 115–116  
 safety and efficacy, 106–107
- Transnational collaboration, 27
- Transnational groups, 19
- Transportation, 40
- Triage, 165
- Tropical hygiene programs, 22
- Tropical medicine, 22
- Troubled Water, 3
- Tuberculin skin test (TST), 47
- Turkey, 217
- Type 2 diabetes, 25
- U**
- Under-5 mortality rate (U5MR), 132
- Uniformed Service University of Health  
 Sciences (USUHS), 138
- United Nations  
 Cluster Approach, 122–124, 134  
 Emergency Relief Coordinator  
 (ERC), 123  
 Office for the Coordination of  
 Humanitarian Affairs (OCHA),  
 122, 124
- United Nations Children's Fund  
 (UNICEF), 22
- United Nations Programme on HIV/AIDS  
 (UNAIDS), 7
- United State Agency for International  
 Development (USAID), 5, 141
- United States (US)  
 Africa Command Pandemic Response  
 Program (PRP), 139  
 Centers for Disease Control (CDCS), 211  
 hispanics, 232  
 latinos  
 cultural differences, 233  
 families in, communities, 237  
 health issues, 237, 239  
 healthcare approaches, 236, 238  
 language barrier, 233  
 patterns, of communication, 235, 236  
 professional medical translator, 234  
 socio-economic differences, 234  
 strategies, for treatment, 238  
 treating patients, 239  
 Military Police (MPs), 144  
 Navy Ship Comfort, 143  
 United States Organization, 248
- Unprofessional behavior, 75  
 consequences of, 78  
 disengagement, 78  
 doing harm, 78  
 eroding trust, 78
- Unprofessionalism, 74
- Up-front collaborative approach that, 130
- V**
- Ventilator associated pneumonias, 43
- Very Small Aperture Terminals (VSAT), 90
- Vision health, 7
- Vocare*/to call, 69
- Voluntary medical male  
 circumcision (VMMC), 7
- Volunteer tourism, 178
- Voluntourism, 53, 54
- Voyeurism, 53
- VUCA (volatility, uncertainty, complexity,  
 and ambiguity), 120, 121, 131
- W**
- Walbachia bacteria, 254
- Water availability and management, 129
- Water-borne diarrheal diseases, 128
- Water insecurity, 128, 129
- Water resource management, 128

Water, sanitation and hygiene (WASH), 21  
Water supply, 127, 128  
    women’s participation in, 128  
Western medical practitioners, 104, 109  
Western medical procedures, 107  
Western scientific medicine,  
    104, 109, 115, 116  
Wireless Fidelity (Wi-Fi) services, 90  
Wireless technologies, 90  
Work environment/healthcare facility, 42  
World Association for Disaster and Emergency  
    Medicine (WADEM), 161  
World Bank, 129

World Council of Optometry (WCO), 250  
World Health Organization (WHO), 9, 95  
    traditional medicine, 103  
Worldwide Interoperability for Microwave  
    Access (WiMAX), 90

**Y**

Yellow fever virus (YFV), 45, 46

**Z**

Zika, 44, 45