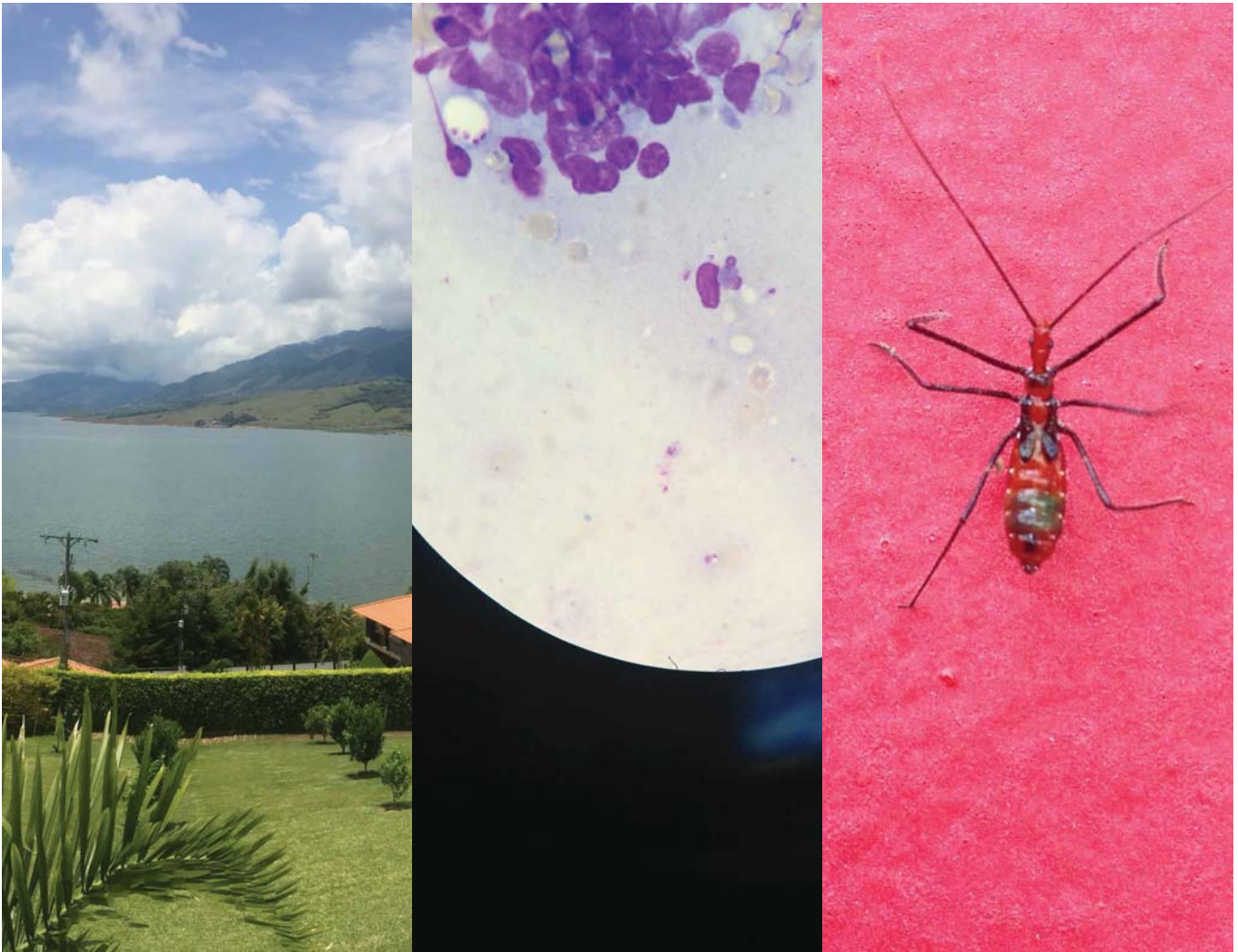


THE MEDICAL STUDENT'S GUIDE
to doing

RESEARCH ABROAD



by Max Feinstein and Jessica Ray

Table of Contents

Contents

Table of Contents	1
1. Introduction.....	2
Max's Story	2
Jess's Story	2
2. Preparation.....	4
Identifying potential host institutions and collaborators abroad	4
Financing a Trip.....	7
Health, safety, and logistics	11
3. While Abroad.....	19
Managing expectations.....	19
Cultural differences.....	20
Research methodologies and deferring to the host	21
Language considerations.....	23
Taking advantage of opportunities while living abroad	24
4. Checklist for Your Trip.....	27
Acknowledgements.....	28
Works Cited	28

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1. Introduction

Max's Story

My name is Max Moses Feinstein, and at the time of writing this guide, I am a rising 3rd year MD / MA Bioethics student at Case Western Reserve University in Cleveland, Ohio. I graduated in 2011 from the University of Southern California with a dual degree in Neuroscience and Philosophy. During the three years between graduating from college and starting medical school, I completed the post-baccalaureate pre-medical program at the Harvard Extension School. At the same time, I worked in a soup kitchen where I regularly encountered Spanish-speakers with whom I was unable to communicate. This language barrier inspired me to begin learning Spanish in the year before I started medical school. My informal Spanish studies took me to Guatemala, Costa Rica, Nicaragua, and eventually Colombia.

It was in Colombia that I found a way to combine my newfound interest in Spanish with my passion for medicine and bioethics. I made connections with the Pontificia Universidad Javeriana in Bogotá, which would later host me to conduct independent bioethics research after my first year of medical school, and then an infectious diseases clinical and research rotation during part of my research year after I finished my second year of medical school. I later embarked on a Fulbright-funded clinical research study in Cali, Colombia, with a group of infectious diseases experts called the International Center for Medical Education and Research (CIDEIM in Spanish). I also took a physical diagnosis course and completed a clinical ethics rotation at the Icesi University School of Medicine. Throughout this journey, I have learned an immense amount of Spanish, infectious diseases knowledge, research skills, and above all, how to navigate the challenges of making and following through on opportunities to conduct research abroad. They have amounted to become a highly rewarding set of experiences, and it is a pleasure to share my insights, along with those of my colleague and seasoned international researcher Jess Ray, with you.

Jess's Story

My name is Jessica (Jess) Ray and at the time of writing this I am a rising fourth year medical student at the Cleveland Clinic Lerner College of Medicine (CCLCM) in Cleveland, Ohio. I graduated from Williams College in 2010 with a degree in Biology and a concentration in International Studies. Prior to starting medical school in 2012 I worked at the National Institute of Health as a Post-Bacc Intramural Research Trainee (IRTA) for two years. While at the NIH I worked in the Laboratory of Clinical Infectious Diseases investigating changes in immune cell metabolism associated with infections. The experience at the NIH piqued my interest for research - asking questions and methodically seeking answers through experiments or analysis - but also made me dedicated to pursuing a medical degree such that I could combine my curiosity with patient care.

However, it was during college that I first became interested in global health, while studying community health abroad in both Tanzania and Vietnam. While in medical school, I have dedicated much time to global health. As a first year medical student I organized a medical trip to Peru. The experience opened my eyes to many of the complications and issues surrounding global health efforts - including sustainability, capacity building, and imperialism. But it also increased my interest in pursuing research abroad that would be worthwhile and impactful. And as a result, I have now spent two years working on a research project in Kisumu, Kenya at the Kenya Medical Research Institute (KEMRI), studying the effects of HIV exposure in utero on infant immunological and clinical outcomes. My research has involved both laboratory research as well as interpreting clinical data in a database and I have had the chance to work side-by-side with our Kenyan laboratory team, field team, and data team on the ground. Through all of these experiences I have not only gained understanding into how to conduct sustainable and impactful research abroad, but have also grown to appreciate the beauty of opening up to and experiencing other cultures. I'm excited to share some of these insights with you, along with my fellow colleague Max, in hopes that it both helps and inspires your own international research path.

2. Preparation

Identifying potential host institutions and collaborators abroad

Top-down Approach

Top-down approach refers to a research experience that is developed based on already existing opportunities. Many universities in the U.S. have departments of global or international health with established professors and ongoing research projects, which as a medical student, you can become a part of. This approach definitely leads to less freedom and autonomy in terms of choice of the location, type of research, research question, and other specifics of your research experience. However, it does potentially increase the odds of successfully securing an opportunity to go abroad - with less logistics, red tape, etc to deal with on your own. In many situations, if you are able to join an existing grant and project, a lot of the time consuming and often complicated leg-work will be done or partially done for you. Advantages of these pre-existing project/relationships include: having established and trustworthy collaborators at local research centers or universities, having a laboratory or field site that is already set up and equipped, potentially already existing IRB approval, having local contacts to help you navigate the political and cultural climate, and sustainability after you leave. Thus, if your primary goal is to simply participate in an international research project in order to gain experience and perspective, and having your choice regarding the location and research question is not the main priority, then piggybacking on an already existing project is a good option.

Here are some key strategies to get started with a top-down approach to setting up an international research experience:

Home institution: One of the easiest places to start looking for international opportunities is your home institution, logistically and practically. Many medical schools and universities have global health or international health research departments. If your institution does have such a department, check out their website and read about the professors and the ongoing projects. If any of them sound remotely interesting to you, reach out. Send an email or make a phone call explaining your interests and your goals and request to have a meeting. If you are at the same institution, face-to-face meetings are ideal as you can best explain yourself and also learn more about the potential research projects you could potentially join.

Other institutions: If your institution does not have many ongoing international research opportunities, you can also branch out to other institutions. Search for established global/international health departments at other medical schools or universities and identify potential mentors. Reach out and explain that you are interested in conducting research for a year (or whatever your time frame is). Explain that you find their ongoing research interesting and would like to discuss the possibility of working with them in some capacity. Below is an

example of an email that can be sent to a researcher working on a specific project that you would like to join (either at your home institution or at a different institution).

Example specific project email

Dear Dr. Researcher,

I hope this email finds you well. My name is Jess Ray and I am a current third year medical student at the Cleveland Clinic Lerner College of Medicine. Currently I am interested in Pediatrics, but also in pursuing a career in global health research. I am writing you today in regards to potential research opportunities. I am currently exploring the possibility of completing a year of research, beginning next July. Specifically, I would really like to complete an international research experience as I think this would help shape my career.

I noticed that you have an ongoing infant HIV and malaria immunology project in Kenya and I was wondering what the possibility of me working with you might be, as this research project is very aligned with my interests.

I am attaching my CV to this email. Additionally, I plan to apply for various scholarships to help fund this opportunity. If you think there is a possibility we could work together, please let me know and perhaps we can set up a meeting to discuss further. Thank you in advance for your consideration and I look forward to hearing from you.

All the best, Jess Ray

Bottom-up Approach

The idea of a bottom-up approach with regard to international research planning refers to designing the experience with specific ideas in mind. These ideas could take the form of a certain destination country, a specific language in which to be immersed, or a particular research topic, for example. Generally speaking, it is more challenging and may take more time to use this approach as compared to a top-down approach because opportunities may be limited (eg. there are few host institutions in the desired destination country, or there is little infrastructure to research a specific topic). But the benefit is that this approach can allow students to enjoy experiences that are tailored specifically to their needs. So if you have a specific goal in mind with regard to your research experience, this is probably the better approach for you.

Here are key strategies to get started with a bottom-up approach to designing an international research experience:

Cold calls / emails: Look online for contact information of people who could potentially be mentors or principal investigators for your research in the destination country. Make a phone call or send an email to introduce yourself and explain what kind of research you hope to do. Be concise. Be sure to explain who you are, why you're writing to them, and what the details of your trip would be. You might not receive a response, but if you do, you will likely be surprised how willing researchers tend to be about taking on students from abroad with whom they have not met before.

Example cold email

Dear Dr. Researcher,

Allow me to introduce myself: My name is Max Feinstein and I am a rising third year medical student at Case Western Reserve University in Cleveland, Ohio, USA. I am interested in conducting infectious diseases research in Colombia, which I believe is an ideal location to learn about tropical diseases that are not encountered often in my home country.

I am writing to ask if you would be willing to consider allowing me to conduct research with you. I found your CV online and believe that your research trajectory would be the perfect match for how I hope to shape my own research. I will be available from August, 2016, through June, 2017. My plan is to apply for two scholarships to fund my travel, lodging, food expenses, and any other per diem expenses.

Please let me know if you think there is a possibility you could take me on as a student-researcher. My CV is attached. Thank you very much for your consideration.

Sincerely,
Max

Home institution contacts: Try to find faculty or students at your home institution who might have connections abroad to help you achieve your goal. For example, if that goal is to do malaria research, try to find malaria researchers at your institution who have connections outside of the US. If the goal is to conduct research in Colombia, then ask around to see if there are any Colombian-born or trained faculty members who have connections to research institutions in Colombia. Depending on the goal in mind, the odds of finding a home institution contact may be relatively low. But if there is one who is willing to help, the odds of successfully making a connection are greatly increased. Don't hesitate to use the cold call / email approach outlined above to get in touch with home institution contacts who you have not met.

Potential home institution contacts

- The international relations office
- The registrar (or whoever in your university organizes medical rotations abroad)
- The department at your university's teaching hospital that is involved with the kind of research you want to conduct
- The medical school dean
- Your advisor
- Professors
- Friends/Classmates

Financing a Trip

School fees incurred during time off

If you are considering taking time off of school to pursue research, you should first determine whether you will incur any additional fees from your school. Some universities require students to pay a small percentage of normal tuition during time off in order to maintain their spot in medical school. It will be in your best interest to ask your dean and/or finance office how time off is handled so you can know what to expect in terms of related fees.

Considerations for financing your own trip

While the thought of spending savings or taking out a loan to go on an extended trip abroad might not make sense for many people outside of medicine, it is worth considering the special financial circumstances of being a medical student. Namely, it's likely that the total cost of your proposed trip will be a small fraction of your annual tuition, and will pale in comparison to your annual salary as a physician regardless of what specialty you pursue. Therefore, if the trip represents a unique learning or travel experience that might not present itself again (or at least not for many years), it might be justifiable to spend money out-of-pocket to take advantage of the opportunity, especially given that the odds of being financially stable in the future are quite high due to physician compensation standards. That being said, it would be beneficial, both financially and for your CV, to apply for any possible grant funding.

Thinking about grant funding

While grants aimed at funding international research tend to be clustered around certain research areas, particularly within infectious diseases, do not be discouraged if there are few or no grants designated for your topic of choice. Instead, try to think creatively about how your topic is related to other research areas that do have grant funding available. For example, a student interested in conducting dermatology research abroad may have trouble finding a grant designated for dermatology research per se. However, there is a wide variety of infectious diseases that have dermatologic manifestations that could be utilized as the link to make a dermatology-related proposal applicable for an infectious diseases grant.

Timing

If you are interested in pursuing an international research experience, whether it be for a summer, a couple months in fourth year, or an entire year, planning ahead is going to be important. In Jess's experience, I started looking at opportunities over a year and a half before I planned to start my project. This allowed me enough time to find a suitable mentor, work through a research proposal, and apply for funding. Not to mention, it gave me time to sort out logistical issues- plane flights, where I would live, visas, immunizations, paperwork for my school, etc. In terms of timing and funding, many funding applications will open in November-January (but some even earlier) and will typically close within the first couple of months of the calendar year (January - March). Notification of award will typically be in March/April and the funding will typically start in June/July. In both authors' experiences, this timing generally holds true for year-long funding opportunities as well as some of the shorter, summer-only opportunities. Knowing these timelines, it is obvious why planning ahead and having a solid relationship with a potential mentor as well as a research plan/proposal early is essential.

Grants to consider

A great place to start looking for grant funding is your own university. Some medical schools offer grants or other funding mechanisms to support summer research after first year. Many medical schools have research grants that are only available to students at that university. Ask your dean, other faculty members, and friends about possibilities specific to your institution.

There is also a variety of national level grants and fellowships available to facilitate research abroad for medical students. The American Association of Medical Colleges provides a list of research grants that include some international opportunities. That list can be accessed by logging into your account at [their website](#). Additionally, the following list, which is by no means comprehensive, highlights some of the more well-known grants and/or fellowships that fund medical student research experiences abroad:

Summer / less than year-long opportunities

Grant	Research area	Timeline*
ASTMH: Benjamin Kean Travel Fellowship in Tropical Medicine	The grant consists of a \$1,000 stipend to support all costs related to travel and project proposal. Research topic should be diseases or illnesses that are common in a tropical area. Project duration should be at least one month.	Application opens: January Application closes: February Notification: May
Arnold P. Gold Foundation: Summer Research Fellowship	Grant consists of a stipend up to \$4,000. Project proposals should focus on community health and cultural competency issues. Preference is given to projects that are collaborative (especially interprofessional collaborations), and those that are designed and implemented by students. Project duration should be 10 weeks or less, to take place in the summer.	Application opens: January Application closes: March Notification: April
IDSA: Medical Scholars Program	Grant for \$2,000 to support projects focused on pediatric or adults infectious diseases. They may involve either clinical or research activities. Research projects can include all facets of infectious diseases, epidemiology, microbiology, diagnosis, treatment, and prevention.	Application opens: December (of calendar year prior to grant disbursement) Application closes: February Notification: April
CDC Hubert Global Health Fellowship	The CDC-Hubert Global Health Fellowship provides third and fourth-year medical and veterinary students with an international population health experience. Fellows are placed in 6-12 week field assignments abroad and are mentored by experts from CDC and other national and international health agencies.	Application opens: January (of calendar year of fellowship) Application closes: February Notification: April

*Dates corresponding with application opening, application closing, and notification of awards are based on 2015-2016 dates. The specific day of the month has been omitted given its propensity to change annually.

Year-long opportunities

Grant	Application considerations	Timeline*
Fulbright US Student Award	<p><i>Grant purpose:</i> A primary goal of the Fulbright US Student grant is to foster intercultural exchange between the students who go abroad and their peers in the host country. Another central component of this grant is to fund projects that benefit the host country in a way that is tailored specifically to that country's needs, in terms of medicine, socio-political climate, etc.</p> <p><i>Choosing a host country:</i> Bear in mind that depending on the host country, the Fulbright application can vary considerably with regard to application requirements, number of grants available, number of applicants that apply, and so forth.</p> <p><i>Considerations for submitting an application:</i> Chief among the features of a successful application is a demonstration of how the proposal project will fulfill the aforementioned purposes of the grant. For most host countries, the Fulbright website provides suggestions for specific ideas to address in the application.</p>	Varies significantly depending on your home institution and the host country specified in your application. See the Fulbright website for details.
Doris Duke International Clinical Research Fellowship	<p><i>Grant Purpose:</i> The primary goal is to provide U.S. based medical students with an opportunity to take a year off from medical school to conduct mentored clinical research in developing countries. The long-term goal of the program is to develop the next generation of clinical investigators working in global health.</p> <p><i>Choosing a host country/institution:</i> The ICRF is administered through six U.S. medical schools with established global health research programs. You do not have to be a medical student matriculated at one of these primary institutions in order to apply. Each school is responsible for overseeing the selection of its own applicants and providing the mentored research, thus you may choose to apply to all or only some of the institutions individually. The six institutions that administer the fellowship are the following:</p> <ul style="list-style-type: none"> ● Duke University School of Medicine and Global Health Institute ● Harvard Medical School ● University of California, San Francisco, School of Medicine ● University of Minnesota School of Medicine ● University of North Carolina at Chapel Hill School of Medicine ● Yale University School of Medicine <p>The Doris Duke Charitable Foundation International Clinical Research Fellowship website provides more details regarding the application requirements, timeline, etc.</p>	<p>Application Opens: November</p> <p>Application Closes: January</p> <p>Notification: March</p> <p>Students are required to complete 12 months of research. In general the ICRF period begins July 1 and ends June 30.</p>

*Dates corresponding with application opening, application closing, and notification of awards are based on 2015-2016 dates. The specific day of the month has been omitted given its propensity to change annually.

Health, safety, and logistics

Health

Vaccinations

Depending on your destination country, you may need to adhere to vaccination requirements and/or recommendations that don't exist at home (eg. if you are traveling to an area where Yellow Fever is endemic). The following resources are useful for determining what vaccinations you need and/or how to receive those vaccinations:

- *CDC website*: The traveler's section of the CDC website is a comprehensive guide for determining what vaccinations you might need.
- *University health services*: Your home university's health services may have a travel clinic that can provide advice on vaccinations and/or administer those vaccinations at little or no additional cost to you.
- *Health insurance*: Your health insurance provider may be able to connect you with a travel medicine specialist and/or facilitate the administration of any necessary vaccines. It would also benefit you to determine which vaccines, if any, will be covered by your insurance. Some vaccines (such as Yellow Fever and rabies) can be quite expensive.

Malaria Prophylaxis

If you will be working in a malaria endemic region, it will be important to take the appropriate prophylactic steps to prevent the disease - including taking prophylactic medication, using bednets, and using deet:

- *Medication*: The CDC travel website is a good resource to determine the importance of malaria prophylaxis in your country/region of choice. But you should plan on seeing a travel doctor to determine if malaria prophylaxis is necessary and also which prophylactic medication would be appropriate for your region and your personal needs.
- *Bed Nets*: In malaria endemic regions, it is important to sleep with a treated bednet. Most lodging in such places will provide bednets. But you may consider bringing a portable bednet in case one is not provided or is not in working condition.
- *Deet*: If you will be outside at times when mosquito bite density is high, using deet is important for protection. Frequently, bug-spray is available locally, but it is a good idea to bring some of your own just in case.

Ciprofloxacin

If you are traveling to a developing country, your travel doctor and/or nurse will likely recommend that you bring ciprofloxacin with you in order to treat traveler's diarrhea. While we all try to be careful about food and water while traveling, it is always best to be prepared. Consult with your travel doctor and/or nurse regarding the appropriate dose for treatment and how many courses of treatment you should bring (which will depend on how long you will be in country and the predicted quality of food/water sanitation).

De-worming / De-Parasiting

If you are traveling to a developing country, food/water safety is a concern. It is recommended that you take a prophylactic dose of anti-parasitic medication (Albendazole) every 3-6 months in order to treat for potential worm infections. These medications can typically be purchased at local chemists, or you can consult with your travel nurse/doctor about obtaining a dose or two either before departure or upon return.

Other Medical Concerns

There are various other medical considerations, especially if you will be living aboard for more than a couple of months.

- *Primary Care:* It is a good idea to see your regular doctor (primary care, ob-gyn, etc.) prior to travel
- *Prescription Medications:* It will be important to procure any prescription medications you take prior to travel (including birth control pills). This may involve contacting your insurance company and requesting permission to obtain bulk prescription medications
- *Over-the-counter Medications:* In addition to prescription medications, it is also recommended that you bring a supply of over-the-counter medications for common ailments such as headaches, fever, GI upset, allergies, etc. Some recommended medications include but are not limited to: Immodium, NSAIDs, Benadryl, TUMS.

Health Insurance

Making sure you have health insurance abroad is an easily overlooked but vital aspect of planning your trip. The following resources are places where you can look for health insurance policies that will cover you during your trip:

- *University health insurance:* If you have health insurance through your university, you may be covered during international trips. You need to check your policy to verify, bring proof of your insurance on your trip in the event that you needed to utilize it. If your university has an office of international relations, that would be a good place to ask about international health insurance coverage. Another important thing to ask about is emergency evacuation. If your school's health insurance policy does not provide emergency evacuation, it is essential you find emergency evacuation coverage in the event that you needed to return home or be evacuated somewhere else for medical or safety reasons.
- *Other health insurance:* While neither author has purchased other health insurance, we understand it to be a viable option for getting coverage abroad. From speaking to other U.S.-based researchers and students, it is reasonable to have a U.S.-based health insurance policy (such as that provided through the Affordable Care Act) that will cover you while you are abroad. Again, it will be important to verify what services are covered while out of the country with your policy provider.

Water and Food Precautions

If you will be living in a developing country, it will be important to take precautions to ensure that your food and water are safe.

- *Water:* If potable water is unsafe to drink in the country/region where you will be working, there are numerous options for obtaining safe water: purchasing bottles or jugs of water, purchasing a large scale filter for your home/apartment, or boiling water. If you will be in-country for a long time definitely consider buying a filter. Additionally, it is important to keep a stock of back-up water in case the water supply runs out (meaning the store runs out of water, the water lines break, there is a drought, etc.).
- *Food:* Food safety is also a concern in many areas. When preparing food for yourself, fruits and vegetables that can be peeled are typically safer because they portend a lower risk of having been contaminated. If you do eat fruits/vegetables that cannot be peeled, washing them with bleach water is recommended. Additionally, cooking vegetables is preferred to eating them raw. When eating meals outside of your home, street food is generally not recommended. However, please remember that all of these recommendations are simply guidelines and ultimately it is up to your own discretion. We do admit that street food can be some of the most delicious...

Safety

Passport copy / security card

We recommend creating, printing, laminating, and always carrying with you a credit card-sized document that contains a photocopy of your passport on one side and any of the following security information on the other:

- Emergency contact phone numbers
 - Friends/family in the host country
 - Friends/family at home
 - Local US embassy
 - Local police department
- Health insurance policy information
- Backup codes for two-step authentication (when applicable) for email accounts, Facebook, etc.

Example passport copy / security card

Carlos and Natalia: +57-555-555-5555 Fulbright Colombia: +57- 555-555-5555 Steve: +1-555-555-5555 US Embassy in Colombia: +57-555-555-5555 Colombian Police: 123 Health Insurance Program - Phone: +1-555-555-5555 - Plan code: 5555555 - Policy number: 5555555 GMail 2-step authentication backup codes:	(Passport copy)						
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1111 1111	4444 4444						
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Travelers' insurance

Emergency evacuation coverage is a must for anyone traveling or living abroad in case of medical or safety concerns that require immediate transportation home or to another location. Some schools/institutions will provide emergency evacuation coverage through the student health insurance or through another policy. This typically requires an additional enrollment process and might come with an additional fee. If your school/institution does not provide emergency evacuation coverage, you will need to look for another provider. Unfortunately, the emergency evacuation coverage can be expensive so it is best to research options and set aside money ahead of time

Notifying your home institution

In addition to informally notifying your dean, registrar, and any other faculty members that you will be traveling, you should check to see if your university has an office that manages activities for students studying abroad. If such an office exists, it would not be unusual for them to require that all students studying abroad submit their travel itinerary, contact information, and other details pertaining to the trip.

US Embassy

Beyond notifying your school, you can also consider notifying the US Embassy in the host country. The US Embassy would not only be a useful resource in an emergency situation, but also sends important warnings and travel updates to anyone subscribed to the specific country's mailing list for that Embassy. In order to subscribe to an Embassy mailing list visit the [Smart Traveler Enrollment Program \(STEP\)](#) through the United States Department of State.

Traveling alone

While general travel etiquette is largely beyond the scope of this guide, it is worth highlighting some important precautions about traveling alone. As foreigners, we often stand out in other countries for our physical appearance, style of dress, way of speaking, among a variety of other features that are often easy for locals to detect. This makes us especially prone to be robbed or otherwise taken advantage of. The following tips can help reduce the odds of that happening:

- Avoid making it obvious that you are walking around with items of value such as a smartphone, laptop, wallet, etc.
- Avoid carrying around items of value unless you anticipate needing to use them
- If you're not familiar with how safe an area is, ask a local who you know and trust what they think of the area
- Avoid walking by yourself at night
- Avoid being intoxicated in public
- Always give up any possessions if you are robbed. Your health and safety is worth more than any of them.
- Depending on your host country, the use of taxis may be dangerous if not done through an application (eg. EasyTaxi, Tappsi, Uber, Taxify) or ordered through a hotel concierge. It is worth checking with locals to gauge how safe it is for foreigners to hail taxis off the street
- Depending on your host country and city, there may also be other forms of transportation available besides taxis/cars such as motorbike taxis and tuk-tuks. Depending on the country, there may also be apps available for locating a safe ride (such as SafeMoto). If not, it is recommended that you do not ride with a driver you do not know, especially at night. Thus, it benefits you to have phone numbers of trusted drivers on hand.

Logistics

Return ticket

Depending on the host country, visa details, and anticipated length of stay, you may be required to demonstrate proof of a return ticket upon leaving the U.S. You should be able to consult the host country's visa policy to determine whether this requirement applies for your situation. If you are required to demonstrate proof of a return ticket but don't yet know when you will return to the U.S., one option is to buy a fully-refundable return ticket for an arbitrary day, print proof of purchase of that ticket in order to leave the U.S., then get a full refund for the ticket upon landing in your host country. It may also be possible to simply print a copy of a ticket you are considering purchasing but haven't actually purchased. Even when these policies are said to be required, they are variably enforced depending essentially on the gate agent you encounter when leaving the U.S. and/or entering your destination country.

Visa

Depending on which country you are going to and how long you are staying, your visa requirements will likely vary. It is important to plan ahead and do your homework about your host country's visa options and requirements prior to departure. Things to consider investigating:

- What types of visas are available: Tourist, Business, Diplomatic, Student, Research Pass, Work Permits, etc
- How long does each type of visa last?
- Can visas be renewed, and if so how and for how long?
- How much does each visa cost?
- What documentation is required to obtain a visa (sometimes you will need a passport photo, proof of travel, where you will stay, etc)?
- Does the visa NEED to be obtained ahead of time, or can it be acquired upon arrival?
- Does your grant funding and/or host research institution provide assistance in obtaining a visa?

The U.S. Embassy and the U.S. Department of State website for individual countries are good resources for this information; each country has its own Embassy and Department of State website you can access. Additionally, the Department of Immigration of your host country may provide more detailed information about less commonly used visas/permits. While online resources are helpful, if someone in your lab or someone you know has previously traveled to the same country and stayed for a similar amount of time, it is recommended to reach out and ask for help/advice. The visa process can be confusing, and sometimes there are tricks that make the process easier. Moreover, if you are working at a renowned local research institute/university that regularly has foreign visitors or with a U.S. institution that regularly sends students abroad there is a chance someone on the ground can help facilitate your visa process. Ultimately, you will benefit from looking into this earlier rather than later.

Cell phone

Bringing vs. buying there

Your decision to bring a cell phone vs. buy one in your host country will depend on a variety of factors, chief among which is the need for a smartphone. The longer your stay, the more likely you will want to have a smartphone to facilitate texting/emailing, using apps to hail cabs, etc. This is worth considering because a smartphone will likely be easier and less expensive to buy before leaving should you decide not to use your current phone. Besides asking friends and family members if they have an old phone you can use, you might also try Craigslist or Groupon for reasonably-priced used or refurbished smartphones. On the other hand, if you just need a simple phone, it will likely be easier and cheaper to buy one once you arrive in your host country.

Unlocking

Regardless of what kind of phone you bring, it will almost certainly need to be unlocked in order for you to use it in your host country. If you intend to bring your current phone, you will want to check with your phone carrier regarding their policy for unlocking phones (by law, all U.S. phone

carriers are required to allow customers to unlock their phones, although there may be time-related restrictions). If you intend to buy or borrow a phone in the U.S., you should also check to make sure it is unlocked. Finally, if you intend to buy a phone upon arrival in the host country, it will more than likely be unlocked and ready for use.

Frequency bands

To make things more confusing, there are a number of different “frequency bands” used by carriers. A frequency band is the type of signal that carriers use to communicate with cell phones to which service is provided. Frequency bands vary depending on provider and country, with some countries often using more than one frequency band. It is essential to make sure any phone you bring works with the frequency band of at least one carrier in the host country. A cell phone’s frequency band cannot be changed, so make sure to investigate which frequency band your phone uses and what is required in the host country. A list of frequency bands by country can be found on Wikipedia: https://en.wikipedia.org/wiki/Mobile_country_code

Internet

In many countries, internet is readily available. Upon arrival, ask about internet providers and their rates for either unlimited data or per use data. In many places, you can buy a portable modem and purchase data bundles. Additionally it may be possible to use your smartphone as a hot-spot to provide portable internet. Depending on the nature of your research, this may be very applicable (such as field work in which tablets are used to record data and the database is either online or at the very least backed-up to an online server).

Housing

In some cases, housing will be provided by the program or your research team may have a permanent housing option in country. However, if your program or institution does not provide housing you might be responsible for finding your own. Things to consider when looking for housing include: cost, proximity to your place of work, safety, roommates, and creature comforts. Depending on the size of the city/town you will be moving to, there may be a network of other foreigners you can link up - potentially via Facebook groups or Google groups. If you are able to link up with other foreigners prior to arrival, definitely ask about popular areas to live, viable house/apartment options, and even potential roommate situations if that is of interest to you. You’ll likely find that the expat community in many areas is rich with information and also very welcoming. In some situations, a home-stay may be a possibility but this likely requires that your boss or institution has a previously-established relationship in the region.

Money

Paying for things in other countries can be stressful or sometimes difficult. Many developing countries often have very cash-driven economies, although that is changing rapidly as more and more mobile money options are developed. When planning for your trip it is wise to consider the following monetary options:

- **Credit card:** Visa is the most widely accepted form of credit card internationally. Mastercard and AmericanExpress are sometimes accepted but it is not a guarantee. Thus, if you have a Visa brand credit card that is ideal. Additionally, if you can find a

credit card with no international transaction fees that would be even more ideal. Make sure you notify your card provider of your travel plans so your card does not get locked or deactivated.

- Debit card: As with credit cards, Visa is the most widely accepted form of debit card internationally. This means when you go to an ATM to take out cash, you will have the most success with a Visa. And like with credit cards, if your card/bank does not charge a fee for withdrawing from a different (or international) bank that is ideal. Like with your credit card, make sure you notify your bank of your travel plans so you are able to use your card.
- Local Currency: As mentioned above, many developing countries operate as very cash-driven economies. It is safe to assume you will need at least some local currency while in country which you can get by: using a debit/ATM card at an ATM, exchanging USD, cashing travelers' cheques, or wire transfers via Western Union. In Jess's experience, using a debit/ATM card at an ATM is the most convenient. Of note, try to choose ATMs linked to international banks (such as Barclay's) instead of local banks. Also check with your bank ahead of time regarding debit card/ATM card personal identification numbers (PIN). Some international banks have different PIN requirements and your bank should provide guidance regarding how this will affect your PIN.
- USD: It is not a bad idea to travel with some U.S. cash. You never know when you will need it, and if you get in a bind it is very helpful to have. Additionally you can always exchange USD for local currency.
- Mobile Money: Many countries have developed mobile banking options. In some countries, mobile money can be used for almost anything - paying for fruit at the market, paying for dinner at a restaurant, or even paying for an electricity bill. It is worth investigating the mobile money situation in your destination country - especially if you are going to be there long-term, as it can be a much more convenient and safer way to complete monetary transactions.

All that being said, money can never be talked about without at least mentioning safety. If you don't plan on using your credit/debit cards it is best to keep them locked up in your home (ideally in a safe). And whatever cash you have, only carry as much as you anticipate needing. The rest of your cash should also be locked up at home (again, ideally in a safe). If you go to the ATM to withdraw cash, it is best to plan to return home immediately to store the cash. Don't make yourself a target of theft unnecessarily.

3. While Abroad

Managing expectations

Laboratory Research

If you are planning to conduct laboratory based research abroad, there are numerous things to consider. Probably the most important and generalized recommendation is to **plan ahead**. This means: think about what experiments you will be doing while on the ground and anticipate how the project might unfold as time progresses. By planning ahead you can familiarize yourself with the protocols you will be using ahead of time. In an ideal world you can even practice and perfect these protocols in the U.S. prior to departure. Planning ahead also allows you to determine what supplies you will be needing. In some situations you may be required to bring supplies with you - this likely requires you think in advance so that any necessary supplies can be ordered, delivered, and packed prior to your departure. Ultimately having a detailed plan for your experiments and a detailed inventory will give you the greatest chance at being successful and efficient.

Depending on the country you will be working in and the facilities that are available, there is a chance you will be working in a laboratory that is not as well equipped or maintained as those you are used to in the U.S. Be prepared for this and think about how you will adjust to such situations. Some common complications to mentally prepare for include: frequent and unpredictable power outages, loss of water (especially loss of distilled water), poorly maintained laboratory space, equipment malfunction (and no on-site technical assistant), lack of appropriate reagents/supplies. Additionally, many reagents/supplies are hard to come by and you will likely find it necessary to be more frugal with your use of such supplies. Be conscientious of how expensive and difficult to procure certain lab supplies are. This is not only practical, but also respectful. Essentially, all of this just means you need to be adaptable and creative on the ground.

Clinical Research

If you are planning to conduct clinical research, there are some important considerations to bear in mind. First is the patient population you will be working with. If you are jumping onto an existing grant, there is a chance the patient population is already defined and has possibly been recruited, consented, enrolled, and even followed. It will be important to know at which stage of the recruitment and follow-up process the study you are joining is at - this will inform your research question as well as your tasks while on the ground.

If you are developing your own research project, then you may be responsible for defining your patient population, developing all of the necessary forms/documents, translating all of the forms/documents into one (or multiple) local languages, recruiting patients, consenting/assenting patients, enrolling patients, following patients, and entering any data collected into an appropriate database. Depending on the scale of your project (number of

patients being recruited, number/timeframe of follow-up visits, amount of data or samples being collected), this can be quite cumbersome, and will likely require staff on the ground.

Beyond the patient population, a primary component of clinical research is a well thought-out, organized, and protected database. If you are lucky, a data collection system will already be in place. However, if your project does not have a data collection system you will have to think about how best to collect and store your data. Data collection will depend significantly on the resources available and where patients will be recruited and followed. If you will be recruiting and following patients at a single site, such as a health center, with reliable power and wifi, then using a computer and/or online collection system is reasonable. However, what is more likely is that you will potentially be traveling to multiple sites, will not have reliable wifi, or even power so will have to use paper forms and enter the forms at a later time or use a computer based system that can backup to an online server once in a wifi network. Frequently, standard practice entails using tablets for data collection in the field and then uploading the data to a server once back in a wifi network. Regardless of what method is used to collect the data, it is essential that the data be frequently checked for accuracy (this can be via double entry, or random cross-check of data) as well as backed-up to a drop-box or online server.

Timeline

Regardless of how prepared you are, how many times you practiced your laboratory protocols, how precisely you packed your supplies, how closely you followed all the advice of mentors and colleagues - you will undoubtedly run into obstacles along the way (both before you arrive in country and once you are on the ground conducting research). The most important takeaway is that you must be patient and flexible. Some things will just take longer than you anticipated. Some things may never be accomplished. And chances are all of this will be completely out of your control. You have to let go, don't get frustrated, and take everything in stride. I think it's fair to say that conducting research abroad (especially in resource poor settings) is best suited for flexible, easy-going people who enjoy problem solving.

Cultural differences

Attitudes about the US

Researchers from the US often experience privilege at home that is obvious but not available to outsiders. The experience of going abroad, particularly to a developing country, can create a sharp contrast that makes US researchers more aware of the privileges that come with learning and working in a rich material and intellectual environment (Benatar 1997). This can be one of the most valuable aspects of conducting research abroad. However, it's important to be aware that your status as an American can lead to special and potentially uncomfortable treatment based on the perceptions that colleagues in your host country have about the U.S..

The U.S. often plays a significant role in the conduct of collaborative international research, often by requiring that host institutions abide by U.S.-dictated research ethics and institutional review board (IRB) protocols. This is often viewed as an important mechanism for ensuring high

ethical standards in research (Hyder et al. 2004). However, in one of the author's experience, it can also lead collaborators in the host country to feel as though the U.S. is imposing their ethical standards on others. This may lead to bitterness that is important for you to keep in mind, and potentially would be worth addressing through conversation with colleagues.

The U.S. also has an international reputation for being a leader in the medical sciences, among other areas like the arts. You might be surprised to notice just how many American products and ideas you see both within and outside of your research. Your status as an American will probably be linked to the ways in which colleagues in your host country perceive the U.S. If they admire the U.S. for being a leader in the medical sciences and other areas, they may also admire you by extension just because you're from there. Max has found this phenomenon to be very common. Alternatively, some people may resent the strong international influence of the U.S., and by extension may harbor bitterness towards you. In Max's experience, this is much less common but is quite uncomfortable when it occurs. Either way, you should be prepared to encounter strong attitudes about the U.S., and behavior that is linked with those attitudes.

Research methodologies and deferring to the host

Cultural sensitivity

Acceptable approaches for conducting research can vary dramatically depending on location. For example, the idea of informed consent and the emphasis on individual patient/subject autonomy is largely a Western creation. By contrast, some communities in certain countries require community-level informed consent for research studies to be conducted if they involve any individuals from that community. Another example is compensation for conducting surveys: While it is common practice to offer survey participants monetary compensation for their time in the U.S., that may be viewed as disrespectful towards participants in certain countries. Overall, it is important to keep in mind that significant methodological differences might exist, and it will be within your best interest to ask your colleagues about what methodologies are and are not appropriate to utilize.

Cutting corners in research

Research conducted in the U.S. is often subjected to a significant amount of oversight at every level, from study design to data collection to result publication. One study found that developing countries tend to have much less IRB and ethics oversight than the U.S. (Hyder et al. 2004). You may find that standards are more lax in your host country. You might also find that, as a result of these more lax standards, colleagues in your host country could be tempted to cut corners in various aspects of your collaborative research. It is important for you to be aware of this issue so you can act appropriately if it does occur.

Cultural norms, the power hierarchy in research, and treatment of females vs. males

Depending on where you will be conducting research, there's a significant possibility the cultural norms will be different than those you are used to in the U.S. It is incredibly important to be

respectful of other cultures and do your best to integrate yourself. If women wear conservative clothes, make an effort to do the same. If it is normal to shake everyone's hand when you enter a room - do it. If everyone takes a 15 minute tea break at 11:00, take a break with them. And so on.

But is also important to recognize that sometimes these cultural norms can be inhibitive and even frustrating. One of the most obvious examples of this is the position that women hold in different cultures. In some countries, the expectations of women are quite different than in the U.S. Mainly, it is not uncommon for women to stay at home and raise children, do housework, go to the market, cook, fetch water etc. Moreover, when a woman is in the working world, she will frequently not command the same level of respect or responsibility as a male peer. While this is unfortunately a reality that women in the the U.S. also experience, it may be even more overt while abroad. This is important to recognize and it is important to navigate such power hierarchies with grace and patience. Essentially, there is a chance that you as a female will experience some level of disrespect or you, as a male or female, will witness a local female colleague being blatantly disrespected and this may be frustrating. In my (Jess's) two years of experience, I'm still not sure I have figured out how best to handle these situations. I go back and forth constantly - is it better to brush it aside or address it head on? I think ultimately, as a female you should do your best to advocate for yourself and your research. And, whether male or female, you should do your best to help empower the women around you - give them additional tasks, ask for their help/advice when needed, teach them new skills, encourage them.

In the hospital

If you have the opportunity to spend time in a local hospital or clinic, we highly recommend you take advantage of such an opportunity. Such an experience will expose you to a different health care system, will potentially expose you to new diseases/diagnoses that are rarely seen in the United States (such as tropical infectious diseases) as well as how they are managed, and will ultimately enrich your time abroad. See the later segment in the "Taking Advantage of Being Abroad" section for advice on how to arrange an opportunity to rotate or observe in a local hospital or clinic.

While it is great to get into the hospital or clinic, it is very important to be careful about how you conduct yourself while in these settings. As a foreigner, it is likely that you will be given more respect/power than you're used to in the U.S. While this may seem harmless, it is not ethically appropriate to misrepresent your level of training (you are still a medical STUDENT). Take care not to perform tasks that are clearly beyond your level or training. A reasonable rule to live by while practicing medicine abroad is do not do anything in a hospital or clinic that you would not do in the U.S. (Crump, 2008). Hence, do not see patients without supervisor oversight, do not perform procedures you are not appropriately trained in or you would not perform in the U.S., always make sure you have appropriate language interpreters when necessary, and please always ask a patient's permission before you enter a room/conduct an interview/perform an exam just as you would with patients in the U.S. The patients you will interact with abroad deserve the same level of respect as your patients in the U.S. For more information on the

ethical standards of practicing medicine abroad as a trainee you can refer to these additional resources:

- “Ethical Challenges in Short-Term Global Health Training.” Doris Duke Charitable Foundation. <http://ethicsandglobalhealth.org/index.shtml>
- Crump J.A. and Sugarman J. Ethical considerations for short-term experiences by trainees in global health. *JAMA*. 2008;300: 1456-1458.
- Dowell J. and Merrylees N. Electives: isn't it time for a change? *Med Educ*. 2009; 43(2):121-6.
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When you do spend time in a hospital or clinic, be sure to ask questions. For example:

- Discuss the illnesses you are seeing and how they are managed locally (consider comparing this to how such illnesses are managed in the U.S.) with health care providers
- Also talk to health care providers about the local health care system - what are the advantages/disadvantages that they see, what are some of their frustrations?
- Talk to your patients about their relationship with health and the healthcare system, about why they chose to come to the hospital/clinic, about what their obstacles are to accessing health care, about their livelihood, their family, etc.

And take notes - jot down anything and everything. This will help you not only remember clinical diagnoses and management, but more broadly will help you better understand the intricacies of the healthcare system you are engaging with.

Idiomatic expressions

It has been these authors' experiences that learning and using common idiomatic expressions from your host city is a great way to ingratiate yourself with locals. This is especially worth bearing in mind as it pertains to demonstrating cultural humility and overcoming any barriers owing to preconceived notions about the U.S. (see “Attitudes about the U.S.”). And most of all, knowing and using these expressions can really enrich your personal experience! The authors recommend carrying a notebook with you, particularly if you're in a country where a language other than English is spoken, so you can always have an easy way to write down new expressions to hang onto for later. Even if you don't pronounce them or remember them correctly, you'll almost always win points for at least trying.

Language considerations

English as the Lingua Franca of science

The fact that English is the primary language of science will have important implications if your colleagues are not native English speakers (van Weijen 2012). Specifically, your reading, writing, and proofreading abilities may prove to be important assets for your colleagues. Keep this in mind when you are looking for skills to offer to the team that could be helpful for research.

Improving your Foreign Language Skills

If you are studying in a country where a language other than English is spoken, you may want to take advantage of the opportunity to advance your foreign language skills. Keep in mind that, in addition to the many benefits of learning a foreign language, demonstrating interest in your host country's spoken language(s) will almost certainly help you make a positive impression with your colleagues. Here are some practical suggestions for enhancing your language skills during your stay:

- *Anki*: If you learn well with flashcards, you're probably already familiar with Anki from studying in medical school. Using Anki is a wonderful way of learning and practicing words and phrases you pick up while abroad.
- *Classes*: Your host institution, a university nearby, or private instructors may be convenient options for having dedicated time to learning a foreign language.
- *DuoLingo.com*: This is an excellent free resource for beginning or brushing up on foreign language studies. Many languages are available. DuoLingo is both a website and an app, both of which are worth exploring.
- *Language exchange*: Your colleagues and other connections you make while abroad may be interested in doing an informal language exchange with you. Depending on your host country, a native/fluent English-speaker will be a rarity, making it easy for you to find a language exchange partner.
- *Newspapers*: The advantage of reading the local newspapers in your host country is two-fold. In addition to improving your reading skills and vocabulary in the local language, you will also learn gain and understanding of local current events, which is great for contributing to meaningful conversations with locals.

Taking advantage of opportunities while living abroad

Integrate yourself into the community

Living and working abroad is a unique and amazing experience - be sure to make the most of it. Do your best to integrate yourself into the local community and engage with the people and the culture that surrounds you. While you may be tempted to isolate yourself or only spend time with other foreigners, in our experience it is also important to spend time with local community members (colleagues, neighbors, etc), engage in local traditions, eat new food (even better learn how to cook some exciting new dishes), etc. Ultimately if you show an interest in learning more about the country, region, and culture in which you are living your experience will be more fulfilling.

Travel

While you are abroad, you should try to take advantage of being in a different country and travel if your free time and finances allow. Traveling (whether within the country you are working, or to other countries in the region) broadens your worldview and exposes you to even more people, ideas, cultures, etc. Not to mention, you'll likely have some once in a lifetime adventures. And when else will you have such an opportunity?

Leaving something behind

While your time abroad is partly about how you grow and develop as a researcher, a student, and a person it is important to recognize that the experience should not just be about you. These experiences are more fulfilling as exchanges, experiences that benefit both parties. Consider what you can contribute that will have a sustainable, impactful effect on the community or people you've been working with. Some impactful contributions include:

- Teaching your local colleagues how to use different statistical analysis packages (R is free, so is usually a good place to start, and will also always be available)
- Teaching new laboratory techniques to colleagues or students that they can use once you leave
- Editing a student's thesis or paper and providing constructive feedback about how to improve
- Volunteering your time at a local organization outside of your research experience

Ultimately it is important to be aware of what you've gained and benefited from the experience and try to make it an even exchange.

Keep a journal/blog

If you don't already, consider keeping a journal or blog for the following reasons:

- It serves as a way to not only reflect on your unique experiences, but also to have a keepsake for later than you can look back on.
- Your friends and family at home and in your host country may appreciate reading your blog insofar as it offers insights into your thoughts about your experiences abroad.
- Reflections in your journal or blog could also later serve as inspiration or notes to write more formal pieces that you intend to publish.
- If you journal or blog in a foreign language, the process can serve as a good way to improve your writing skills in that language.

Write and publish pieces from your unique perspective

While abroad, you will likely be exposed to unique situations owing to your status as a foreigner. For example, you may find yourself in ethical situations that you've never encountered at home, or you may see a patient with an illness that is rare or non-existent in the U.S. Observations about any of these situations may be apt to publish in academic journals or home/host country newspapers.

Take classes

If you are conducting research at a university, chances are that you can enroll in classes at little or no additional cost. Even if you're not working at a university-affiliated institution, you still may find that classes at local universities are affordable. This could be a great opportunity to advance your language skills, statistical analysis training, or any course of study that you find interesting or helpful.

Rotate or observe in a hospital

If you are interested in having clinical experiences during your time abroad, you should consider finding or creating opportunities to rotate or observe in a local hospital. Depending on the circumstances of where you are staying and what local hospitals are around, you may need to get creative with regard to making a connection to get you into the hospital. Here are some ideas to get you started:

- Ask the international relations office at a local medical school if you can rotate or observe in their teaching hospital
- Leverage any connections you have to clinicians who would be willing to allow you to spend time in the hospital with them
- Send a "cold email" to any clinician or hospital administrator who you think might be willing to facilitate a rotation or observership, even if you've never met them before

Look for more research opportunities

Once abroad, you might find yourself looking for opportunities to conduct research beyond your originally-planned work. Generally speaking, it is much easier to find these kinds of opportunities when you're actually in the host country as compared to coordinating them from home. If your host institution doesn't have any projects for you to work on, you should consider using creative approaches such as:

- Asking around at the appropriate departments within a local medical school, research institute, or hospital if there are any opportunities to volunteer to help on research projects
- Leveraging any connections you've got with local researchers to see if they can introduce you to other researchers with new or ongoing research
- Sending a "cold email" to any local researchers who you've identified through their work in the literature (see an example of such an email)

4. Checklist for Your Trip

Papers and Documents

Passport
Visa
Proof of your connection with the host research institution (when appropriate)
Driver's license if you plan on driving (check to see if it's valid in the destination country)
Credit/debit card(s)
Cash
Proof of health insurance
Proof of traveler's insurance (when appropriate)
Passport copy / security card with emergency contact information
Return ticket (when appropriate)

Health and Safety

Proof of vaccination (when appropriate). <i>Yellow Fever card is necessary to enter/leave certain countries</i>
<i>Medications</i>
- Malaria prophylaxis
- Ciprofloxacin
- OTC meds for typical ailments (Tylenol, Pepto Bismol, etc.)
- Personal prescription medications
Flashlight

Research

List of any supplies you are bringing with you, including supplier, catalog #, quantity, expiration date
Difficult to locate reagents
Ideally, all computer programs you need for data collection, analysis, etc will be downloaded (internet downloading capabilities not guaranteed)

Other

Unlocked cell phone that will work with frequency band of host country
- Helpful apps to have installed: Whatsapp, Viber, Anki, Duolingo, Google Translate, Uber/Tappsi/EasyTaxi/Taxify
Notebook for journaling / writing down new terminology
Electrical adapters/converters

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