Chapter 6
Guidelines and Parameters for Ideal Short-Term Interactions: Disaster Relief

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How can we help in a disaster situation? The need and desire for immediate deployment to render aid must be balanced with the need for a measured response that takes into account both local needs and an honest self-assessment of one's own skills set. What type of health system was in place prior to the disaster? What injury and illness patterns exist? Who is responding to the disaster and how? What is the current political situation in the affected area? Providing care in austere environments is not for everyone, and even the ablest of health care providers can stumble when they are unprepared to understand and do *what is needed*. Close coordination and integration of care by volunteers can avoid some of the common mistakes that have plagued disaster responses over the years. Importantly, although disaster relief can seem far removed from academia, properly performed relief takes into account basic academic principles, most notably in the increasing movement to measure outcomes through disease surveillance and quality improvement of these efforts. In this chapter, we outline general principles for participation in disaster relief as well as the evaluation of efforts therein.

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Do No Harm

If a natural or man-made disaster has just occurred and you have no experience working as a surgeon in a low resource setting but have been asked to join a team and are reading this chapter for insight, stop – now is not the time to gain experience and understanding. Being part of a disaster mission is nothing to take lightly, and requires planning and preparation to do well. Remember, *primum non nocere*, first do no harm. This concept is often ignored during disaster responses when ill trained and inexperienced volunteers rush to help. The rationale, *something is better than nothing*, is rarely true and often times *do gooders* without the proper support and experience do not actually help and can even make things worse.

Before heading into a disaster zone on a relief mission – be it natural or man-made – unless you are physically present on the site where this occurred, do not rush in. It is especially important to not rush in alone. Think about your family, your work and your reputation; rushing to help and ending up as a hindrance can lead to multiple problems for the people you were trying to help and for yourself.

Also consider the ethics of what you are doing and why. Most likely the people you will be trying to help have suffered. There will likely be a lack of water, food, shelter, fuel and health care. Make sure that you will be a net positive for the situation and not become a burden on those you are trying to assist.

As international disaster response has become increasingly common and advanced, several themes have emerged as critical to success:

- *Coordination of care* is paramount, particularly as ease of international travel allows more and more aid groups to reach areas of disasters quickly.
- *Involvement of local resources* is not only ethically necessary, but prudent, as local health care providers can supply invaluable information about local needs, disease patterns and medical care abilities.
- Responders must *plan for changing patient demographics*; quite often the initial wave of injured is followed soon after by a surge of the chronically ill whose access to usual healthcare has been disrupted by a disaster. Disaster relief is often principally concerned with the reestablishment of baseline surgical/medical capacities rather than pure trauma care.
- Even as providers focus on immediate needs, *planning for transition and aftercare* must begin almost as soon as one arrives on ground. Disaster relief often has a short memory and leaving without making plans for transition of care is to be condemned.
- Although difficult in disaster situations, *disease surveillance and quality assurance/improvement* are vital to proper performance of relief efforts. Adjustments need to be made in response to what is always a ‘moving target’ of needs and resources.

Prepare

As stated above, preparation is the key. Do not just run to a disaster zone because the opportunity presents itself. Make sure that you are adequately prepared and that there is some logistical backing or organizational structure to support you. There will certainly be a first time for everyone, but before volunteering for a relief mission, it is almost imperative that you have prior experience working in a low-resource setting environment. It is not appropriate that the first time you operate without electrocautery, suction or lights be during a disaster. Even though such skills are not difficult for most surgeons to gain, they still need to be learned and practiced. Volunteering in a stable, low-resource setting can begin to provide the background and understanding of what possible conditions will be like during a disaster relief mission. Further, depending on the stable low-resource setting and the organization that helps arrange the mission to the disaster, the circumstances in the disaster may be relatively better than the experience gained in the stable environment.

Additionally, it is important to go with a group that has prior experience not only in disaster relief missions, but also in similar locations so that they better understand governmental and cultural nuances. There are a number of well-respected organizations such as Médecins Sans Frontières (MSF), International Medical Corp, and the U.S. Government International Disaster Management Teams that have the technical experience and logistical framework to support volunteer surgeons on a relief mission. It is the logistics on the ground that will ultimately determine if your mission and the treatment your patients receive is successful. Other useful U.S.-based resources include the American College of Surgeon's Operation Giving Back program (http://www.operationgivingback.facs.org) and the Global Paediatric Surgery Network (http://globalpaediatricsurgery.org), both of which serve as clearinghouses for short- and intermediate-term surgical work in low- and middle-income country settings.

When assisting in a disaster situation, having some knowledge or special connection with the location is helpful. This can include a sociopolitical understanding of the affected region, cultural issues specific thereto, competence in a local language, and so on.

Prior to signing up for a relief mission, it is also useful to get some specialized training. Some groups such as MSF hold courses for new volunteers; other options include humanitarian surgery courses run by Stanford University or the American College of Surgeons. Many of the cases encountered in the field will likely include infected wounds, open fractures and maternal health care needs; therefore, some familiarity and comfort with trauma, orthopedics and obstetrics is mandatory. Other subspecialty skills that can be useful include: pediatric surgery, plastic surgery, neurosurgery and urology. Experience in these subspecialties can be gained by working with other colleagues at your home institution. Another option, which requires a significant time commitment, is a rural surgery fellowship. As of this writing, ten such fellowships are offered in the United

States (see http://www.facs.org/residencysearch/specialties/rural.html, accessed September 12, 2015). In addition, there are multiple online and in-print resources that address trauma and non-trauma surgery in austere settings, including the two-volume Primary Surgery text edited by Maurice King and the International Committee of the Red Cross' War Surgery Manuals (see suggested readings).

Prior to volunteering it is also imperative that your family and work colleagues be aware of your interest and that they, like you, understand the commitment. Often they will be supportive, but this might not always be the case. It is better to let them know before you actually deploy.

It should go without saying that you must be in good physical condition, and if you have medical issues that you are able to take along enough medication. Be aware that if you have a problem in the field there may be limited assistance. Adequate treatment, stabilization and evacuation may not happen in a timely fashion. In addition, if you have a problem, scarce resources that were intended for the affected population might have to be diverted to you.

If Asked to Go

Assuming you have the proper experience and necessary preparation, if and when you are asked to participate in a relief mission, you should ask yourself of the following questions:

1. Do I have the proper experience and skills?

   There is no guarantee what types of cases or conditions that will arise on a disaster relief mission. It is best to be prepared for possibly being the only surgical care provider for a population in need. This means being able to provide all manner of surgical care, including trauma, orthopedics, pediatric, plastic, neurosurgical and obstetrics. Unless you already have some experience in a low-resource setting it may be difficult to adapt quickly to the conditions for providing appropriate care. Additionally, flexibility and creativity is needed as specific equipment and supplies (*e.g.,* specialty sutures, premade Plaster of Paris, abundant gauze) frequently will not be available. Further, depending on where the disaster occurred, an understanding of tropical medicine and conditions (ascaris, schistosomiasis, malaria, tuberculosis, hydatid disease, *etc.*) is useful. Good fundamental examination skills are a must, as often there will be little in terms of diagnostic modalities. While portable ultrasounds are more frequently being used in such settings, CT scanners and x-rays will usually not be available. In addition, routine blood tests might also be lacking.
2. Does the organization asking me to volunteer for a disaster relief mission have the experience to provide proper logistical support, security and, if needed, evacuation?

   When evaluating an organization with which you will volunteer for a relief mission, make sure that they have the experience and breadth of capacity for

providing logistical support, security and an evacuation plan. There is little sense in your going to help and then requiring resources to care for you.

3. Would sending a cash donation to an organization be a better option?

   If you do not have the proper skills or experience and cannot go with an experienced organization, a cash donation to an organization such as the Red Cross or MSF may help the most. Individually collecting and sending equipment and supplies is not recommended, as many professional relief organizations will try to get supplies to the disaster zone and there could be a backlog or delays at the transport hubs which might also have been damaged.

4. Am I healthy enough?

   Just having the desire to go is not enough. Are your vaccinations up to date? Do you have a yellow-fever vaccine and a valid yellow card if going to an endemic area? Will you need anti-malarial prophylaxis, and can you tolerate the various medications? Can you work for many hours straight in possibly very hot or cold or wet conditions with limited air conditioning or heating? Do you have any medical conditions that would limit your ability to work or tolerate extreme conditions?

5. What about issues back home (family, co-workers)?

   Are your affairs in order back home? Have you made adequate arrangements to cover patient care and call duties? Do you have designated emergency contacts and a beneficiary in case of an emergency or untimely death? Does someone have your social media accounts and passwords?

What to Bring?

Depending on the situation you might not be able to bring much with you. One school of thought is to just take enough personal items so that you only have carry on luggage. This facilitates your movements and reduces the risk of losing bags on flights. It is also easier to pack in the event an evacuation is needed.

For personal effects, aside from comfortable clothing and toiletries, we suggest taking a small portable headlight and a microfiber towel. Any personal medications and a small personal first aid kit can be useful. Some organizations provide volunteers with cell phones and a local SIM card. If a cellphone is not provided, it might be prudent to bring an unlocked GSM cellphone so that a local SIM card can be purchased.

In terms of medical supplies, it is sometimes possible to bring materials with you depending on the logistical capability of the organization with which you volunteer. Access to supplies may be limited and you might have a personal preference that will not be available locally. Be aware that often times there is a great need and that a few bags of supplies will probably be insufficient, though the items will certainly be useful. In addition, for some organizations it might be prudent to bring a few pairs of scrubs and personal operating room shoes.

Another important issue is whether to bring items for personal entertainment. On some missions it will be very busy and there will be little or no down time; however, on others there will be a lot of waiting. "Hurry up and wait" is quite a common phenomenon. During such waiting times and during periods without high patient volume, books, e-readers, music, playing cards and videos will be a nice diversion. One thing to remember is that there may be limited electricity to recharge batteries and you will need to know the local pin adapters or have converters for recharging items.

What to Expect on the Ground

Living conditions on a relief mission can vary widely. Ultimately it is unwise to plan for an intervention without adequate shelter. Ideally a small team would have done an assessment of the situation and found appropriate shelter for a larger team. Remember that there may not be a constant water or electricity supply. Care must also be made for security of the team and the safety of staff and patients.

Further, it is important to try to avoid getting sick yourself. Water must be filtered, boiled, chlorinated or purchased in bottles. Food must be either packaged or well-cooked. Anti-malarial prophylaxis is essential if you will be working in an endemic location.

When working with patients, universal precautions must always be followed. This includes eye protection and double gloving, if possible. Carrying medication in case of exposure is also recommended.

Depending on the baseline conditions and the type of disaster, the operative caseload can vary widely, but it will certainly be different from back home. Sometimes hospitals and health facilities are completely destroyed and field hospitals need to be set up and used. When possible, it is best to work along with local health officials to support existing structures instead of creating a parallel system. Problems occur by undermining confidence in local providers and creating issues with follow-up and patients who visit various facilities. It is also important that the organization you volunteer with works within the UN cluster system so that there will be some coordination of health care delivery. The role of expatriate health care providers is to *augment and support* local health care resources, not replace them.

As stated above, there may or may not be running water or a constant supply of electricity. There may or may not be a dedicated operating room, sufficient supplies, functioning equipment or post-operative facilities. There may be no nurses or aides to assist with pre- and post-operative care or even in the operating room. Depending on the baseline situation and the cause of the disaster there may be many trauma patients and/or maternal or pediatric cases. Sometimes the situation will be dangerous or unstable and patients may not be able to get to the health facilities and things will be slower than anticipated. During these times it is important to work with the

staff but not overwork them. Occasionally it is appropriate to do some elective procedures but this should possibly be avoided as a large influx of patients can happen without warning and it is important to have fresh teams and sufficient supplies.

Remember that many of the wounds will be neglected and will need good debridement. Infected wounds should not be closed and patients should be given a tetanus vaccine and immunoglobulin, if appropriate. Try also to conserve supplies, especially suture, gauze, bandages and tape. There will be difficulty getting new shipments and so each case must be accomplished as efficiently as possible.

If there are local colleagues, it is imperative to have a respectful and collaborative working relationship with them. There may be many baseline issues which are not necessarily at a standard of care of your home institution, however, it is important to try to give the best care possible. Also remember that local colleagues are under enormous stress as their families and communities are affected by the disaster.

If there are a large number of local providers, it may be best to take a bit of a backseat and work more as a mentor and advisor. Often times the local surgeons will want to take care of the patients and be primarily in charge. Let them and work with them; offer to assist and try to keep things as safe as possible. You do not want to get into conflict with local providers in a disaster zone where security may already be an issue.

One issue, which may arise, is the interaction with other volunteer staff. Often volunteers want to help, but they may not have the proper skills and experience. This is another reason to work with an experienced organization but it is no guarantee of success. Try to maintain a flexible attitude and be supportive. However, in the case that someone is not providing good care or is negatively affecting the team either because of a lack of skills or difficulty with the situation, it is important to speak with those in charge.

Another issue concerns photography. While this is permissible and even encouraged, respect and privacy of the patient needs to be maintained. All patients should be asked for their permission and there should be care taken when sharing the photos, especially on social media.

Quality Control and Metrics

Often lost in the conversation on surgical humanitarian relief work is a discussion of the need for quality assurance. This is where the academic surgeon may be especially qualified to contribute. Reviews of procedures and outcomes – be it a weekly sit-down conference or a 15 min huddle under a tent – are critical and no less important in emergency settings than in academic halls. They provide a method for introspection and a way to avoid repetitive errors. When properly done, these reviews set an example of inclusivity that can serve to benefit both patients and care providers

at all levels. Remember to include all members of the team to the greatest degree possible, welcoming local and expatriate staff, nurses, aides and physicians. Remember also that this culture of case review may be foreign to the local staff and visiting surgeons are wise to not to assign undue blame for those poor outcomes that are inevitable in any emergency setting no less than "back home."

When Leaving

Ideally, when you leave a relief mission there is a plan in place to care for your patients so that they get appropriate post-operative care and a mechanism exists to take care of any complications and for follow-up. Ideally this is arranged before a project is started; however, there is often a rapid desire by clinicians to jump in to start helping, and there needs to be some way to care for the patients after the initial procedure. How will they be fed and provided for? Will they become more of a burden on their families and communities afterwards? These are difficult questions and involve cultural and ethical considerations. Again this necessitates a strong organizational environment and close collaboration with local health providers and community leaders.

Finally, if there is left over equipment and supplies from a mission, ideally these can be given to local health care providers. They should not be wasted.

On Return

Returning home after a mission can be stressful. It is important to have a debriefing and it is further ideal to have supportive family, friends and colleagues with whom to discuss the experience. It is important to discuss what happened, both the good and the bad. Usually there will have been significant issues that affected the care of patients and might not have been a proper standard of care, however, one needs to keep in mind the limitations and the difficulties of working in a disaster zone. It is important to understand what was done, identify any problems and understand what could have been done differently.

Documenting the experience is an imperative part of the re-assimilation process and can take the form of an end of mission report for the organization and a personal journal. Additionally, if appropriate, the experience should be shared with colleagues who are interested in similar experiences. The mission can be documented for a medical journal or shared on social media, although many international humanitarian relief organizations have strict rules regarding the use of social media (check first). Though not a priority on a relief mission, research can sometimes be undertaken, often comprising descriptive studies using routinely collected data. However, if research is to be done, ethical oversight and collaboration with local colleagues are a must.

Conclusions

Opportunities for academic surgeons to participate in disaster relief missions for natural and man-made disasters are increasing. Although there is a tremendous need for assistance and a great desire on the part of volunteers to help, in order to provide quality care and do the most for the population in need, a volunteer should have prior experience working in low-resources settings. In addition, specialized skills and flexibility are essential. Foreign language skills can be tremendously useful. The importance of working with an experienced and established organization cannot be stressed enough.

Volunteers must also try to assist local colleagues who are experts in the local infrastructure and with local disease conditions. Safety and security for the volunteers, patients and local community must be on the forefront. Reflection on one's work and patient outcomes, both in real time and *post hoc,* are a critical way to bring an academic flavor to relief work to the greatest degree possible. Subsequent dissemination of results obtained and lessons learned – whether through formal peer-reviewed publication or through prose or other forms of communication – will contribute significantly to the body of knowledge slowly accumulating on how to relieve suffering and bring high levels of surgical care to disaster victims.

Suggested Reading

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