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Humanitarian Aid Workers

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KEY POINTS

- Humanitarian aid workers (HAWs) typically travel for extended periods, work in close proximity to local populations, and work in high-risk environments in low-resource regions.
- Deployment in a field hospital to disaster-stricken areas constitutes a challenging task, as the delegation is usually rapidly assembled and deployed, and the situation at the destination is uncertain.
- Although morbidity might be high, death during volunteer missions is not common and is usually not typically attributable to infectious diseases. Medical evacuation is not common.
- Owing to the nature of their work, HAWs are often unable to avoid high-risk behaviors and frequently encounter stressful conditions, leading to psychologic repercussions. Pretravel and posttravel physical and psychologic screening evaluations, in addition to routine health care, are essential among this population.
- Returning-ill HAWs may be a threat to public health in their home countries, as was demonstrated in the 2014–2015 Ebola outbreak in West Africa.

INTRODUCTION

Traveling to extreme environments for the purpose of providing humanitarian aid is becoming more common with greater interconnectedness. The number of humanitarian agencies, including both United Nations (UN) bodies and nongovernmental organizations (NGOs), involved in complex emergencies and other humanitarian aid missions has increased significantly in the last two decades and has been accompanied by an increase in the number of recruited personnel designated to work in complex environments.^{1,2}

The humanitarian aid worker (HAW) community is an extremely diverse group of organizations and individuals. Most HAWs originate from North America or West and Central Europe and their popular destinations include Africa (especially the sub-Saharan region) and Southeast Asia, but the Caribbean, Central and South America, and Eastern Europe are also temporary homes for many. They may travel for a period ranging from a few days to a few years and practice many different kinds of aid (medical, educational, agricultural, etc.). Most of them are in their 20s or 30s, but some are even elderly. They may be professional or nonprofessional; they may travel in big groups, in families with children, or as individuals.¹⁻⁷

Data about the extent of this phenomenon is still scarce. However, two surveys done in the United States in an interval of two decades demonstrated an increase in the percentage of travelers reporting volunteer work as their main travel purpose. Out of 2445 surveyed Americans who traveled to developing countries between 1984 and 1989, 5% did so for the purpose of voluntary/missionary activities.⁷ In 2009, the number more than tripled with 17% reported traveling as volunteers or medical aid providers.⁸

The GeoSentinel Network, the largest global database of travel-related morbidity, documented 40% of long-term travelers (>6 months abroad) traveled for volunteer or missionary purposes. As well, 7% of the short-term travelers (<1 month) traveled for similar reasons.⁹ If this reflects

the nature of traveling, aid workers may become, if they are not already, a group of travelers that pose a specific challenge for travel medicine practitioners as well as for mental health specialists. This group is different from typical travelers because they tend to travel for longer periods,^{9,10} work in close proximity to local populations, and practice high-risk professions (medical work, peacekeeping missions, security, drivers, etc.) in low-resource environments that have poor infrastructures. In addition they tend to practice high-risk behaviors.^{2,11}

Despite this fact, there are limited data focusing on this group; Peace Corps volunteers (PCVs), the International Committee of the Red Cross (ICRC), and various UN agency employees represent one source of information, but these groups tend to be better organized, with structured recruiting, screening, and surveillance programs. This contrasts significantly with the many other volunteers sent on behalf of small, sometimes very inexperienced NGOs. Additional data may be extrapolated from few publications that focus on expatriates, long-term travelers, or others focusing on aid workers from different organizations. Therefore generalizations are difficult to make and personally tailored recommendations should be favored.

Those who practice in field hospitals in disaster-stricken areas are another subset of travelers whose medical recommendations are complex as the teams are exposed to unpredictable environments of physical, medical, and emotional nature. These groups also tend to move on very short notice.^{12,13}

MORTALITY IN HUMANITARIAN WORKERS

The risk of death among aid workers is influenced dramatically by the nature of their work and the country and situation in which they find themselves. Traveling to areas following natural disasters or to areas with ongoing violent conflict is common, as is engaging in high-risk work such as peacekeeping missions, security, or medical care where there is little infrastructure. Nevertheless, published data clearly

Abstract

Traveling to extreme environments for humanitarian aid mission is now common. Humanitarian aid workers (HAWs) typically travel for extended periods, work in close proximity to local populations, and work in high-risk environments in low-resource regions. Owing to the nature of their work, HAWs are often unable to avoid high-risk behaviors and frequently encounter stressful conditions, leading to psychologic repercussions. Although morbidity might be high, death during volunteer missions is not common and it is usually not attributable to infectious diseases. Medical evacuations are also not common. One unique aspect of ill-returning HAWs might be their threat to public health in their home countries, as was demonstrated in the 2014–2015 Ebola outbreak in West Africa. Thus pretravel and posttravel physical and psychologic screening evaluations, in addition to routine health care, are essential for this population.

Keywords

Disaster
Field hospital
Humanitarian aid workers
Mental health
Morbidity
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Nongovernmental organization (NGO)

demonstrates that death during volunteer missions is not common and neither is medical evacuation. Contrary to the common perception, “obscure” tropical diseases are rarely the cause of death.

Of 105,539 PCVs, 185 died during missions between 1961 and 1983. Almost 70% of these deaths were caused by unintentional injuries (especially motor vehicle accidents). In the following 20 years (1984–2003) of >70,000 volunteers, 66 deaths occurred during service. Among the 66 deaths, 45 involved unintentional injuries; 11 were due to homicide; 7 from chronic illnesses (5 from heart conditions, 2 from cancer), and only 2 from infectious diseases (1 from malaria, 1 from sepsis). Almost all the fatal injuries were of volunteers age 18–34. Death from chronic illnesses were more common in the older age group.⁵

Comparing the first two decades and the following two decades of PCVs showed a decline in the overall death rate by more than half. This decrease was mainly attributed to the decline in motor vehicle accidents and the decreasing number of deaths from chronic illness. These changes resulted from restriction of motorcycle use by volunteers and better pretravel screening of applicants with chronic illnesses.^{5,6}

According to the 2014 aid worker security report,¹⁴ during 2013 a new record for violence against civilian aid operations was set, with 251 attacks affecting 460 aid workers; among them 155 aid workers were killed, 171 were seriously wounded, and 134 were kidnapped. Over half of all violent incidents occurred in the context of an ambush or roadside attack in escalating conflict-stricken areas.

Death from disease or “natural causes” is rare. In a report that examined 382 cases of death among aid workers (1985–1998), only 8% of deaths were disease related. Interestingly one-third of worker fatalities from NGOs were from diseases in comparison to only 5% of worker fatalities from the UN. This may be explained by better pretravel medical screening and preparation by the UN, compared to small NGOs, which may focus on recruitment.¹⁵

MORBIDITY IN HUMANITARIAN WORKERS

Though catastrophic events leading to death during aid missions are uncommon, morbidity is significantly higher. This was reflected in a survey conducted among ICRC personnel serving an average of 11 months. Among them, one-third (36.4%) reported a decline in health, and 72.8% reported having at least one medical problem during their mission. The rate of medical problems identified among them varied between regions, while traveling to Africa seemed to pose a greater risk in almost all reported categories of medical issues.²

A wide range of illnesses are suffered during missions (Table 35.1). These include conditions with similar incidence to those reported by GeoSentinel among ill-returned travelers: gastrointestinal (44%), febrile (23.3%), and dermatologic (19.5%).¹⁶ However there are specific conditions that seem to be overexpressed among volunteers such as psychologic problems, gynecologic complaints, and dental emergencies (see Table 35.1). It is very important to note, however, that GeoSentinel clinics (which, as mentioned, deal only with ill-returned travelers) are typically those whose specialty is travel and tropical medicine, and these providers do not typically see general medicine, surgery, trauma, or dental problems.

Morbidity Among Rescue Teams and Volunteers Working in Acute Disaster-Stricken Areas

Natural disasters in poor-resource countries such as the 2015 Nepal earthquake, 2010 Haiti earthquake, the 2004 Indian Ocean tsunami, among others, resulted in the dispatch of foreign aid, including field hospitals. These hospitals are mobile, self-contained, self-sufficient health care facilities capable of rapid deployment of immediate emergency requirements for a specified period of time.¹⁷

TABLE 35.1 Medical Problems Reported by the International Committee of the Red Cross Expatriates on Missions

Medical Problem	International Committee of the Red Cross ² <i>n</i> = 1250 %
Diarrhea	44
Fever	25.9
Fatigue	19.9
Gastrointestinal (not diarrhea)	15.6
Neuropsychologic	14.6
Dermatologic	16.3
Dental	12.6
Respiratory	8.8
Gynecologic/obstetric	8.5
Cardiovascular	1.7
Sexually transmitted diseases	0.3

The current literature addressing disasters in poor-resource countries places most of the focus on the victims of the disasters and the diseases emerging among them. Illness among rescue teams or volunteers to natural disaster areas is reported only anecdotally. The only study known that has focused solely on the morbidity of the staff deployed in a field hospital was done during the deployment of the Israeli Defense Force field hospital to Nepal following the 2015 earthquake. Gastrointestinal (GI) complaints were by far the most common, with 53% of the entire staff affected. The group concluded that despite practicing in a stand-alone and well-equipped facility, prevention of GI problems was very difficult.¹³ Thus, critical to all aid missions is careful briefing with regard to the challenges of food and water hygiene. A structured guideline may simplify the short preparation phase, as summarized in the experience of the Israeli Defense Force field hospital to the Philippines following the 2013 tsunami.¹²

SPECIFIC DISEASES AND MEDICAL CONDITIONS

We highlight some of the conditions we believe require special attention or those that may influence the health recommendations that should be provided to HAWs.

Malaria

Malaria-endemic countries are common destinations for aid workers. The length of stay in the host country poses a challenge for the consulting physician recommending the proper chemoprophylaxis to minimize adverse effects and ensure adherence to treatment.

Despite prior knowledge about transmission of the parasite, relief workers fail to continuously incorporate protection measures into their daily life. A comparison of knowledge regarding health risk during travel between HAWs and other travelers was done at the Institute Pasteur in France. Although NGO travelers had better knowledge about the transmission route of malaria, no difference was observed in their knowledge regarding means of prevention or symptoms requiring prompt medical consultation.¹⁰ Furthermore, even medical doctors and nurses working for prolonged periods in malaria-risk areas are reluctant to take long-term malaria prophylaxis. In a study in a health care setting in Equatorial Guinea, including 108 Western medical staff and their families, almost half (*n* = 49) chose not to take any malaria chemoprophylaxis.¹⁸ This report of poor adherence to malaria prophylaxis should prompt

TABLE 35.2 Incidence of PPD Conversion Rate among Peace Corps Volunteers by Region⁴

Region	Total PPD Conversion Rate Per 1000 Volunteer-Months
Africa	1.464
Europe and Central Asia	1.442
Southeast Asia	1.364
Central America	1.272
Caribbean	0.994
South America	0.739
Pacific Islands	0.547

PPD, Purified protein derivative tuberculin skin test.

research efforts toward more realistic and safe chemoprophylactic regimens. Preliminary reports examining the efficacy of twice-per-week prophylaxis with atovaquone-proguanil in long-term travelers to West Africa offer a potentially easy solution using a medication that is currently available.¹⁸ Studies substantiating such user-friendly regimens are needed.

Tuberculosis

Tuberculosis (TB) is one of the most prevalent infections in the world. Limited data are available regarding infection risk among travelers and aid workers.

Unlike long-term travelers for tourist purposes, aid workers have a higher tendency to work and live in close proximity to local communities. PCVs typically live with local families and many volunteers work in health-related fields, in educational systems, prisons, orphanages, among other areas where they are at higher risk of acquiring a TB infection.

In a Dutch study, 1.8% of Dutch travelers to high TB-endemic regions were identified as newly TB-infected patients. The overall incidence rate was 2.8 per 1000 person-months of travel after the exclusion of health care workers. The infection rate is of a similar magnitude to the average risk for the local populations in the endemic areas. Not surprisingly, working in patient care abroad—a common volunteerism choice—was an independent risk factor with an odds ratio of 5.3.¹⁹

In a study examining the tuberculin conversion rate in a group of long-term aid workers from New Zealand, the TB conversion rate was 1.4 per 1000 person-months.²⁰ Despite this rate of newly infected persons, active TB cases are very rare.⁴ The average conversion rate varies among different regions and countries (Tables 35.2 and 35.3).

HUMAN IMMUNODEFICIENCY VIRUS/ACQUIRED IMMUNODEFICIENCY SYNDROME

Data regarding HIV infection in travelers or humanitarian workers are scarce. The data that do exist suggest a very low rate of transmission,^{9,21} though some data are old and may not be representative.

Numerous reports suggest that casual and unprotected sex are common practice among aid workers.^{2,11} Those returning from longer missions were more likely to have engaged in risky behavior, as were males and younger volunteers.

In a review from New Zealand, tracking 607 volunteers for 17 years, there were no HIV or hepatitis C virus (HCV) infections detected. On postassignment questioning, 6.7% of volunteers reported unprotected sex with someone other than their regular partner and 9.8% reported a potential exposure to blood and/or blood products.²⁰

TABLE 35.3 Countries With High Incidence of PPD Conversion Rate Among Peace Corps Volunteers⁴

Country of Volunteering	PPD Conversion Rate Per 1000 Volunteer-Months
Hungary	5.514
Guinea-Bissau	5.309
Ethiopia	3.384
Côte d'Ivoire	3.161
Cameroon	3.104
Albania	2.799
China	2.788
West Russia	2.632
Kazakhstan	2.426
Turkmenistan	2.421

Occupational exposure is another possible source of infection. It has long been established that health care workers are at increased risk of acquiring bloodborne infections through percutaneous or mucosal exposure. Health care workers traveling to HIV-prevalent countries are estimated to be at an even higher risk. A British study found that the risk of health care workers in developing areas of acquiring HIV infection through work was 1.5% over 5 years, which represents 1 in every 333 workers per year.²²

Another study showed that almost one-third of British medical students doing an elective period in a hospital in a developing country had experienced at least one exposure to potentially infectious body fluids during their clinical training. Of these exposures, 75% were unreported²³; 23% of American medical volunteers reported exposure to blood splash, and 2.3% experienced a needlestick.²⁴ Although the number of exposures do not necessarily differ from those in their home country hospitals, the risk may be much higher due to reusable and perhaps not disinfected medical devices; absence of a stable supply of protective measures such as gloves, gowns, and masks; a higher prevalence of patients with high HIV viral loads; and lack of knowledge or access to appropriate postexposure prophylaxis.

Needlestick exposure poses a risk to a wide range of diseases other than HIV/AIDS. Among other potential infections are dengue virus and other hemorrhagic fever viruses, syphilis, and trypanosomiasis.²⁵ Hepatitis B and C viruses are of special importance in low-income and middle-income countries.

Rabies

The risk of rabies is considered to increase with longer duration of travel. Since volunteers tend to travel for longer periods, and since they tend to stay in more remote areas, postdisaster areas, or even work in farms or directly with animals, one may assume they may even be at greater risk than the typical traveler. Of Norwegian missionaries and aid workers serving in different regions, 7% were exposed to proven or suspected rabies during their mission.²⁶ PCVs are 10 times more likely to be exposed to rabies risk abroad than in the United States,²⁷ and numbers are as high as 3120 bites per 100,000 volunteers per year. The wisdom of preexposure prophylaxis is thus critical to discuss with all such workers.

Dental Care

Oral health is an essential component of well-being and dental emergencies may pose a challenge to volunteers in developing countries. Dental

services are often lacking or primitive, with most developing countries having an extremely low density of dentists per population. On the other hand, it appears that dental problems are a common complaint of long-term travelers, expatriates, and volunteers. Eight percent of business trip interruptions were reported to be caused by dental emergencies.²⁸ Among US PCVs serving 2 years in Madagascar, dental problems were reported as the fourth most common health problem, with 3.7% of volunteers reporting an event during service.³ Similar numbers were reported by PCVs in Africa, with even higher numbers noted among ICRC personnel.²

Mental Health

Mental health problems are consistently among the most reported health problems among relief workers overseas (see Table 35.1). However, the extent of the phenomenon is often overlooked, and the emotional needs of volunteers are often left unmet.

Anthropologist Kalervo Oberg was the first to apply the term “cultural shock” to people who travel outside of their familiar culture.²⁹ The term suggests that travel and the experience of a new culture, considered as a positive and exciting experience by most people, may be an unpleasant surprise or even shocking for others. Contact with an unfamiliar culture can lead to anxiety, stress, mental illness, and in extreme cases physical illness and suicide.^{30,31} Exposure to extreme events with multiple casualties poses an even greater risk of long-term mental health consequences.^{32–34}

Relief workers are usually younger and motivated individuals, who travel to places that are both geographically and culturally remote from their usual environs. They often travel without their family or familiar companion. They may travel to war zones and postdisaster areas where they may be exposed to large-scale death and suffering. As well, they often have great aspirations, sometimes unrealistic, about their future volunteer work and its effect on the community. These may all serve as precipitating factors for the development of emotional distress expressed by a wide range of symptoms, and may even develop into more serious mental health conditions.

Two percent of PCVs in Madagascar seek mental health counseling outside of the routine support provided by the organization. The rate of reported mental health problems was more than double that among other volunteers in the entire African region.³

Over 40% of ICRC volunteers reported upon return that their missions were more stressful than they had expected; 30% reported exhaustion for at least 1 week during their mission, while similar numbers reported sleeping problems; 10% used sleeping pills. Others reported behavior changes as contributors to stress: 14% reported an increase in alcohol consumption; 43% admitted to smoking more than usual, and an additional 10% started to smoke for the first time. These behavior changes were more common among those reporting exhaustion. Three percent reported having used illegal drugs, mainly cannabis, during their stays.²

Suicide as a leading cause of death among international volunteers was first noticed in the Peace Corps: 13% of all reported deaths from 1981 to 1983 were due to suicide. These numbers declined drastically after applying a better screening procedure, with only one reported suicide in the following 20 years.^{6,7} Unfortunately many organizations do not have a parallel screening process and follow-up capabilities.

Finally it should be emphasized that culture shock and emotional distress may also occur upon return home. This readjustment back to their own culture after a period of time abroad has been termed “reverse culture shock.” In this part of their adjustment, volunteers may feel especially lonely without the support of the organization or the expatriate group with which they felt most comfortable.

HUMANITARIAN AID WORKERS—THE PUBLIC HEALTH ASPECTS

HAWs who serve in remote, undeveloped destinations and more commonly those working or volunteering in medical situations may serve as vectors for transmission of diseases across borders. The most alarming example for this potential threat was the 2014–2015 Ebola outbreak in West Africa. In addition to the delay in recognizing the existence of the outbreak, the Western world and international aid organizations were not fully prepared to contain the spread of the disease, neither within the disease-stricken areas nor across borders. The most common “vectors” for the 20 Ebola cases that were imported to Western countries were evacuated HAWs or those traveling commercially during the disease incubation period. The rapid development of interagency preparedness managed to contain the threat with only a few secondary Ebola cases (three nurses who treated Ebola patients). The lessons learned during and after this outbreak should serve as a model for preparedness and guidance against other potential threats.

One might imagine as well the potential for transmission across borders of novel and severe respiratory illnesses such as influenza, Middle East respiratory syndrome (MERS), and the like. Remaining vigilant and prepared are keys to prevention and management of such threats.

HEALTH RECOMMENDATIONS FOR THE RELIEF WORKER TRAVELING TO CHALLENGING WORK ZONES

As mentioned, relief workers are comprised of a diverse group of organizations and individuals, thus general health recommendations should be tailored according to the age of the volunteer, the duration of travel, destination, nature of work, and other variables. The different aspects of pretravel recommendations for HAWs are summarized in Tables 35.4, 35.5, 35.6, and 35.7.

In a systemic review examining the available pretravel health advice guidelines given to humanitarian aid workers, high-risk hazards for aid workers were identified (often location specific), including travelers’ diarrhea, vectorborne infections, accidents, violence, TB, HIV, hepatitis A, leptospirosis, typhoid fever, and seasonal influenza. The above mentioned are all (for the most part) preventable, provided that pretravel medical and psychologic assessments and/or education sessions become mandatory and that the travelers remain vigilant and compliant.³⁵ Unfortunately, despite efforts at strict adherence to food and water

TABLE 35.4 Physical and Laboratory Screening

1. Review of medical history, with emphasis on chronic health conditions and psychiatric history
2. Complete physical examination
3. Consideration of ECG, stress test
4. Dental examination
5. Routine laboratory testing: CBC, fasting glucose, kidney and liver function, etc.
6. Baseline serologic tests: HIV, hepatitis B virus, hepatitis C virus
7. TB screening (PPD or IGRA)
8. Pregnancy test for women of childbearing age
9. Malignancy screening (colonoscopy, mammography, and Pap smears according to national screening recommendations)

CBC, Complete blood count; *HBV*, hepatitis B virus; *HCV*, hepatitis C virus; *IGRA*, interferon gamma release assay.

TABLE 35.5 Vaccinations and Medications

1. Update routine vaccinations and add travel vaccines according to destination and duration of travel
2. Consider chronic medication supply for a minimum of 3 months and sustained mechanisms for future shipments of drugs. Use of local brands is not recommended
3. Provide self-treatment medications: diarrheal diseases (antibiotic appropriate to region and traveler), malaria standby therapy, first-aid kit
4. Provide malaria prophylaxis as needed
5. Provide a mechanism for obtaining HIV postexposure prophylaxis
6. Provide for availability of malaria rapid test kit (for groups, as recommended)

TABLE 35.6 Personal Protection (as Appropriate)

1. Mosquito repellent
2. Male condoms
3. Personal supply of needles for injection or intravenous treatment
4. Protective clothing (gloves, gowns, goggles), face masks

TABLE 35.7 Psychologic, Cultural, and Environmental Preparedness

1. Provide psychologic assessment to evaluate the ability of the volunteer to adjust to the specific mission
2. Assist organizations in developing and implementing pretravel preparedness programs, including background of host country, work environment, and cross-cultural issues
3. Promote knowledge regarding risk behaviors with possible health implications. This may include a wide range of topics such as traffic accident awareness, safe sex, tuberculosis, or schistosomiasis prevention

TABLE 35.8 Activities During Mission to Promote Health

1. Provide continuous professional accompaniment of the volunteer to minimize insecurity and stress
2. Give periodic oral and/or written refreshment of personal safety and risk behavior recommendations
3. Consider group administration of malaria prophylaxis or a reminder mechanism to maximize adherence
4. Engage in regular debriefing sessions, either in a group or one on one, allowing volunteers to express stress and difficulties during mission
5. Encourage prompt professional intervention if posttraumatic stress disorder (PTSD) signs or symptoms are suspected
6. Provide periodic personal medical consultations for prolonged missions

precautions or insect precautions, illnesses such as travelers' diarrhea, typhoid, and vectorborne diseases still occur.

During missions, especially those that are long term or to crisis areas, volunteers should undergo a refreshment of health guidelines regarding wide-range risk behavior activities, either individually or in groups. In addition, debriefing mechanisms should be implemented with emphasis on peer support (Table 35.8).

Posttravel follow-up is unfortunately a neglected topic. Emotional and physical aspects of the volunteer should be addressed to ensure

TABLE 35.9 Postmission Physical Examination

1. Address specific signs and symptoms reported by the volunteer
2. Review any high-risk exposures
3. Perform complete physical examination
4. Perform routine laboratory tests as during pretravel session
5. Obtain serologic testing for HIV, hepatitis B virus, hepatitis C virus, and other agents where suspected exposures may have occurred
6. Repeat tuberculosis screening
7. Obtain stool for ova and parasite testing

TABLE 35.10 Postmission Psychologic Evaluation

1. Provide debriefing session(s) upon return
2. Encourage peer support
3. Monitor the readjustment of volunteers, as well as their children
4. Evaluate for posttraumatic stress disorder signs and symptoms, especially following crisis intervention missions

proper resettlement into his or her culture and community (Tables 35.9 and 35.10).

These recommendations should be executed both by the providers and by the recruiting humanitarian organization, and a comprehensive program, if feasible, is favored.

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