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## Physician Assistant Global Advancement Through the Use of Medical Relief Organizations

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# Physician Assistant Global Advancement Through the Use of Medical Relief Organizations

## Abstract

**Objectives:** The physician assistant (PA) model has been adopted by many nations to alleviate health care disparities. The objective of the project is to understand how medical relief organizations are utilizing physician assistants and contributing to the advancement of the career globally.

**Methods:** A search was conducted to create a list of all U.S. based medical relief organizations. An 18-question online survey was sent to 493 organizations that met inclusion criteria.

**Results:** Total response rate of the survey was 56.2%. 75.6% of organizations reported using PAs on their medical relief projects, and PAs were used in clinic/hospital/and operative settings.

**Conclusions:** The majority of medical relief organizations utilize PAs as part of the health care team. Relief organizations send medical personnel to countries with health care burdens and thus expose countries to the PA health care provider model. Although more research needs to be done, medical relief organizations contribute to a global understanding of the role of the PA in improving access to health care across the globe.

## Keywords

physician assistants, physician shortage, global health care, advanced practice providers

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## Introduction

A significant shortage of health care providers has become an undeniable reality facing the health care system in the United States. There is a projected deficit of some 122,000 physicians by 2032 as demand for physicians continues to grow faster than supply (AAMC, 2019). A promising strategy aimed at closing the gap in health care is the use of physician assistants (PAs) (Glicken & Miller, 2013; Hooker & Everett, 2012; Zywiak, 2013) who are trained in a ‘generalist’ model and are able to exercise autonomy in clinical decision-making in a variety of specialties (Hooker & Everett, 2012). PAs can prescribe medications in all 50 states, but their roles and responsibilities vary greatly depending on their specific scope of practice determined by their supervising physician.

The U.S. is among other countries that also have a growing shortage of physician health care providers. In fact, the U.S. fares far better than many countries, with a physician to patient ratio of roughly 11.93 doctors and nurses per 1,000 population (O’Brien & Gostin, 2011). A World Health Organization (WHO) study estimated that 57 out of 192 countries were experiencing a critical shortage of health care workers, which they defined as a ratio of physicians, nurses, and midwives to population of less than 2.28:1000 (O’Brien & Gostin, 2011). The WHO estimates a need for an additional 4.2 million health care workers to begin alleviating the health disparities of these countries (O’Brien & Gostin, 2011; Scheffler et al., 2008). This discrepancy leads to unnecessary morbidity and mortality of persons who would most likely otherwise experience positive outcomes with adequate access to health care (O’Brien & Gostin, 2011). Much of this disease burden consists of chronic conditions such as HIV/AIDS, which require persistent management and follow up, a responsibility well within the scope of practice for PAs in the United States (Hooker & Everett, 2012).

Globally, the concept of the PA is expanding. Many countries have begun, or plan to begin, pilot programs to test the feasibility of creating a PA-type role to decrease deficiencies in health care capacity. For example, in Ghana, “medical assistants”, which possess roles similar to U.S PAs, provide over 70% of the nation’s primary care, seeing an average of 90-150 patients a day (Gillette et al., 2014). Similarly, the South African “clinical associate” plays a major role in addressing the national physician shortage by working at the district hospitals (Couper & Hugo, 2014). In Nepal, “health assistants” are trained and participate in primary curative care, emergency treatment, maternity, public health, tuberculosis, and leprosy care and serve as “the backbone of health care in Nepal” (Pedersen et al., 2015). As of 2007, 25 of the 47 sub-Saharan countries in Africa had advanced providers who are similarly trained to PAs but function more autonomously. These professionals are helping to address the country’s physician shortage (Gillette et al., 2014). The following countries have also established PA roles within their health care system: Australia, Canada, England, Netherlands, Scotland, Taiwan, and India (Hooker et al., 2007). Aside from the Netherlands, all of these countries fall short of the WHO recommended 3:1,000 doctor to population minimum ratio (O’Brien & Gostin, 2011; Scheffler et al., 2008). Many additional countries falling short of this ratio, however, remain without access to adequate health care and have not implemented the PA provider role within their country. This predicament has motivated many U.S. relief organizations to travel to these areas of the world in an attempt to alleviate the enormous global health care burden.

## Purpose

The purpose of this project was to determine to what extent U.S. relief organizations use PAs on medical relief projects and whether the use of PAs provides greater alleviation of the health care burden.

## Methods

### Methodology

The methodology is a qualitative survey study design using an eighteen-question survey of multiple choice and free response questions. The first question in the survey was an exclusion question to be sure that the respondents worked for an organization that directly recruits and sends healthcare providers to participate in medical volunteer or relief projects.

## **Survey Participants**

The list of organizations for the survey was determined through a multi-step process. First, data was collected from members of Physician Assistants for Global Health (PAGH), an organization designed by the American Academy of Physician Assistants (AAPA) dedicated to the advancement of PAs in global health (AAPA, 2016), who had participated in any international medical relief project. PAGH members were asked to provide the name of the organization and its email address. This resulted in 31 organizations for the list, which were entered into a spreadsheet.

Then, an internet search was conducted using three separate search phrases: “long term medical missions,” “international medical opportunities,” and “volunteer medical international trip.” Results were reviewed to the ninth page. Each organization’s email address and phone number were collected and added to the spreadsheet. The search generated an additional 765 organizations, for an initial total of 796 organizations. Non-domestic organizations, identified by a contact number outside of the United States, were then excluded. If an organization's email address was not listed on their website, the organization was contacted directly via phone to request email contact information. If an email address wasn’t obtainable, the organization was excluded. The final list included a total of 493 organizations that were surveyed.

## **Procedure**

An eighteen-question survey was produced on Survey Monkey. The survey contained a mix of multiple choice and free response questions. The first question in the survey was an exclusion question: “Does your organization directly recruit and send health care providers to participate in medical volunteer or relief projects?” Organizations who answered “no” to this question were routed to the end of the survey and were not able to participate in the entirety of the survey.

The survey was sent out to all the primary contact email addresses in the list. Reminder emails were sent to organizations that had not yet responded at one- and three-month intervals. After three months, the organizations that had not yet responded were contacted via telephone to participate in the survey. Contact was attempted twice via telephone. Each survey question was then analyzed using descriptive and inferential statistics.

## **Data Analysis**

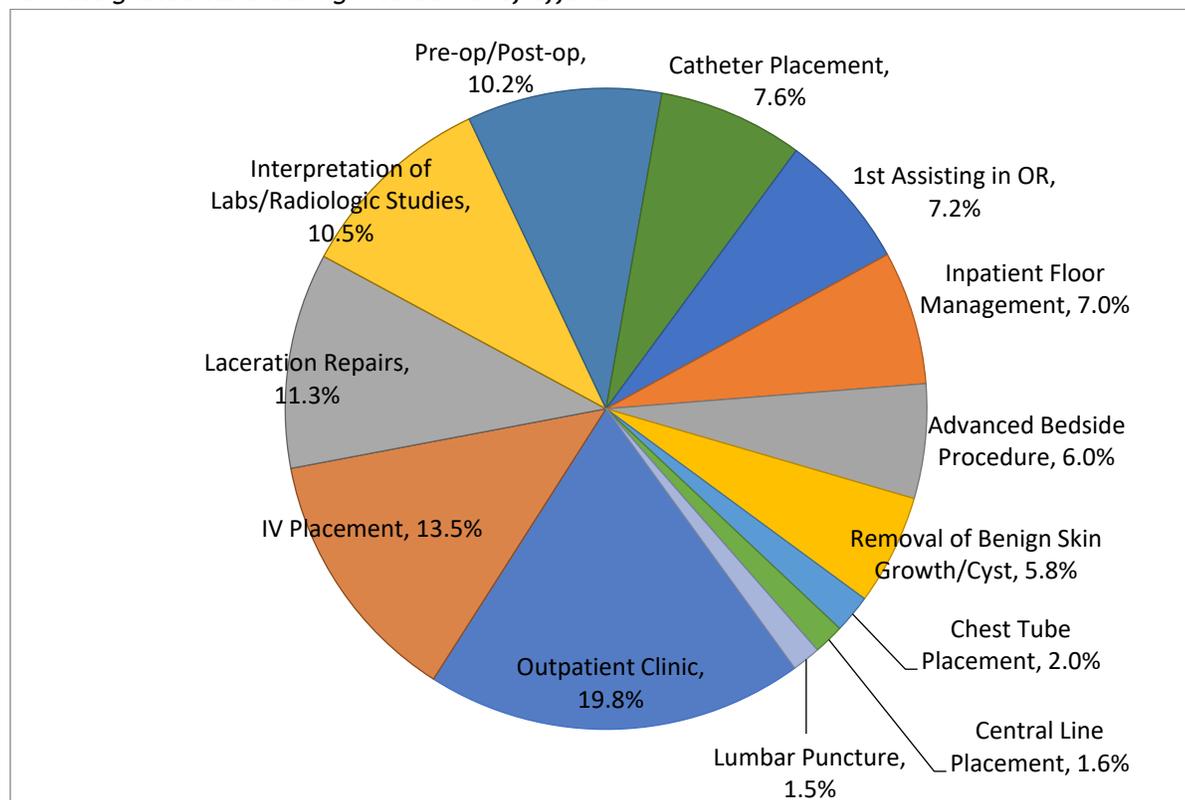
The data were compiled using the SurveyMonkey online software and responses to survey questions were then analyzed using descriptive statistics. For each question the authors evaluated response frequencies for relevance and grouped all free text entries according to consensus opinion. These data were then summed and recorded in an Excel spreadsheet. To express this as a frequency, the number of analogous responses was divided by the total 'n' value of free text responses for the questions.

## **Results**

The overall response rate of the survey was 56.2% (n=277). Of the respondents, 71.1% (n=197) of the organizations directly recruited health care providers to participate in their medical volunteer project and were thus included in the data analysis per the inclusion criteria. Of these organizations, the vast majority are long-established institutions, with only 8.52% being founded in the last 5 years.

## **Team Composition**

The majority (71.0%) of surveyed organizations sent teams of 10 or fewer health care providers on each medical relief project. Advanced practice providers (APPs), defined as physician assistants and nurse practitioners, were utilized by 75.6% of the included organizations. However, in 61.9% of cases, APPs comprised less than one third of the traveling health care team. For 70.5% of organizations, APPs mainly functioned alongside a volunteer doctor or local provider, while 29.5% of organizations reported that APPs worked independently. APPs performed a variety of tasks in clinic, operative, and hospital settings (See Figure 1). Most commonly (85.4%), the APPs saw patients in an outpatient clinic setting.

**Figure 1***APP-designated tasks during medical relief efforts***Project Length**

Medical relief projects varied in length, but the majority of organizations sent providers for less than 4 weeks; only 5.9% of organizations sent providers for 3 months or greater. Health care providers most commonly saw 10 or more patients per day with 36.8% of organizations seeing greater than 30 patients per day. Solely medicine-based services were provided most often (48.3%), however 25.0% of the organizations provided both medical and surgical services.

**Licensing issues**

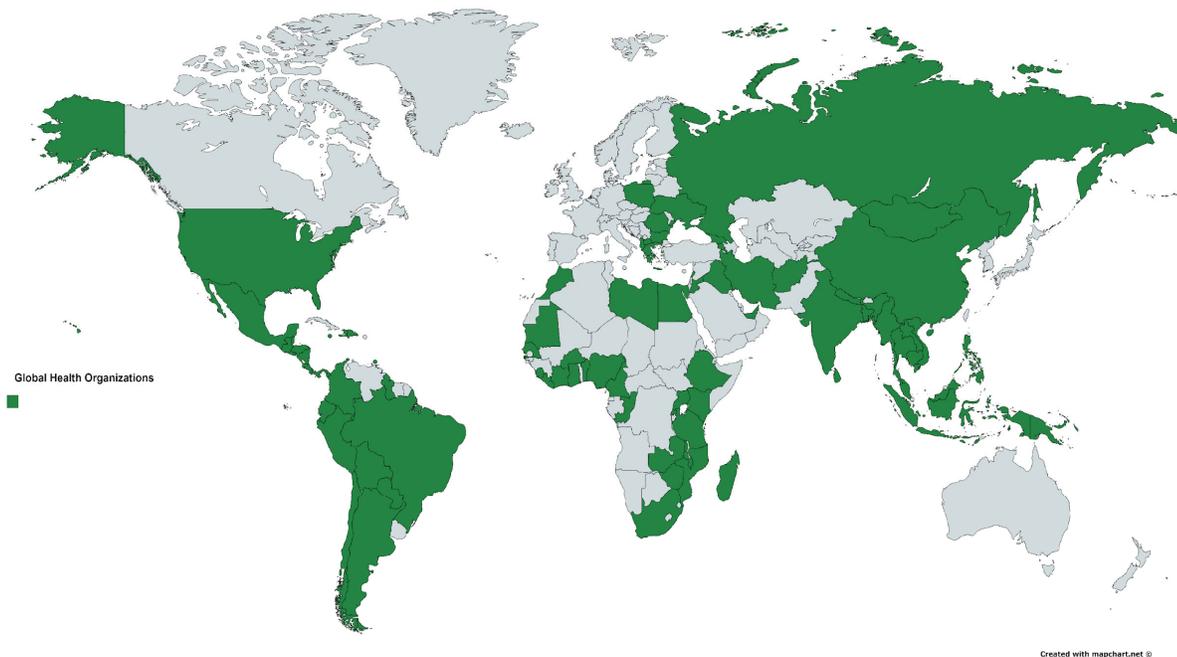
While approximately 69.9% of organizations reported no concerns with sending providers abroad due to licensing issues, many organizations responded with free text and explained that specific countries are unwilling to recognize PAs as a health professional and subsequently will not let them practice locally. Countries mentioned included Rwanda, Ethiopia, Mongolia, Jamaica, and Ecuador.

**Project Location**

Of the organizations that were surveyed, health care teams were sent to 92 different countries (See Figure 2), with the majority (79.0%) of medical projects taking place in Haiti, Kenya, Guatemala, Uganda, India, and Peru. Of the various factors influencing location choice, the most common reasons selected by survey respondents were medical need and prior arrangements with the local ministry of health (MOH). Free text responses from various organizations reiterated that they have an established long-term exclusive relationship with the MOH in the specific countries where their medical relief projects take place. 48.2% of organizations reported that the physician to citizen ratio in the area traveled was less than one physician per 1,000 citizens.

**Figure 2**

*Countries where surveyed medical relief organizations send health care teams*



## Discussion

### The Role of the PA in Medical Relief Projects

The PA career is used as one of the solutions for closing the health care gap not only in the United States but also in multiple countries that have adopted the model (Gillette et al., 2014). APPs are utilized in 75.6% of U.S.-based teams sent by various organizations on medical relief projects and have roles that mirror those of U.S.-accredited PAs. Throughout the duration of the relief projects, PAs mainly practiced in an outpatient clinic setting, seeing an average of 10-30 patients a day. This setting allows the PAs to demonstrate their abilities to execute medical decision-making and treat various disease states. During these relief trips, the PAs also performed simple procedures such as laceration repairs, IV placements, and catheter placements as well as spent time first assisting in the operating room. By having PAs perform some procedures, physicians are available to address more critical health care needs. PA involvement in the health care team also increases efficiency by allowing more patients to be seen. One study found that throughout a day, on average, PAs are able to see the same number of patients that physicians were able to see in a family practice, internal medicine, and pediatric setting (Cawley 1994).

### Value of PA Role in Relief Organization Projects

It is difficult to assess the value of the PA role globally because the profession is not universal. Countries that have created PA positions in their health care system have variable schooling, training, accreditation processes, certification, specialties, and titles. Additionally, the defined roles are varied and specific to the country's health care needs (Rick et al., 2017). The commonality between the roles of a PA provider is that the creation of the career in each country is aimed at contributing to the health care provider gap and is addressing health care worker shortages. One of the focuses of this initiative was aimed at understanding the role PAs can play as a part of solution for the immense global health crisis. More than half of the surveyed organizations are sending medical professionals to areas of the world that are beneath the WHO-recommended provider-to-patient

ratio of 3:1000. By including PAs in medical relief projects, there is an increased exposure to the PA position in countries that are in desperate need of health care provider support.

The Global Health Workforce Alliance (GHWA), an organization hosted by the WHO, is dedicated to solutions for the current global health care crisis. The GHWA recognizes the ability of PA providers to deliver essential health care services and supports advocacy for the PA role in the global health system. A recent report by the GHWA states that PAs have helped to significantly decrease child and maternal mortality in Bangladesh (GHWA, 2010). Similarly, WHO reports that Malawi, Ethiopia, Tanzania, Zambia, and Uganda have all been successful in using PAs as the main providers for antiretroviral treatment strategies for HIV/AIDS (Mullan & Frehywot, 2008). By using advanced practice providers, the number of patients able to receive treatment dramatically increased (Lehmann, 2008). The WHO also found that PA providers who receive adequate training and are supported tend to have performance similar to or better than their physician counterparts (Lehmann, 2008). There is much evidence to support that PA clinicians are being trained in a shorter amount of time and at a smaller cost than physicians to provide medical and surgical care to critically underserved populations across the world. The overall success of the PA model has brought the attention of policy makers and public health officials who recognize the multitude of benefits PAs bring to addressing the physician shortage (Mullan & Frehywot, 2008).

One third of the surveyed organizations admit to having an established relationship with the MOH in the nation in which they are sending volunteers. This relationship further exposes the local governments to the role and potential benefit of a PA-type provider on a health care team. Since some awareness of the role of advanced practice providers within government exists, the traveling health care teams may have the influential power to help local governments develop their country's specific interest toward the utilization of PAs and other commensurate providers.

#### **Exposure to the PA Role on Medical Relief Trips**

Many of the surveyed organizations send medical professionals on relief trips that last less than four weeks. This short duration makes it difficult to determine the direct effectiveness of PAs working through these organizations. However, most of the organizations utilize local clinics and hospitals, more often than not working with local medical personnel rather than setting up their own clinics onsite. This regular exposure to PAs on the visiting health care team allows local providers to become more accustomed to the work PAs do. In countries without a PA provider, the exposure to PAs and their skill set might help to initiate an interest in the profession. Additionally, in those countries with an established PA position, interactions between local and foreign health care workers could allow for exposure to other systems of training and scopes of practice.

#### **The PA and Advanced Practice Provider Role Globally**

The surveyed organizations send health providers to over 90 different countries. The most common countries frequented are Haiti, Kenya, Guatemala, Uganda, India, and Peru, which all fall short of 2 physicians per 1000 citizens. Of these nations, most do not have an identified advanced practice type role. India does utilize PAs who are trained for four years with the last year being an unpaid internship. However, as of 2014, the Indian government does not recognize them as official health care providers (Sundar, 2014). Uganda trains clinical officers, which are completely autonomous providers analogous to physicians, who have three years of post-graduate education and an additional two-year internship (Saswata et al., 2005). Similarly, Kenya has a clinical officer that is less trained than a medical officer, the physician equivalent, but still undergoes 3-4 years of postsecondary training with a one-year internship (Mbindyo et al., 2013). Haiti, Guatemala and Peru all remain without a PA-type role.

Infectious diseases are a major cause of premature mortality in many of the countries that are traveled by relief groups. These diseases include but are not limited to HIV/AIDS, tuberculosis, cholera, meningitis, dengue, and malaria (Boutayeb, 2006). U.S. PAs are trained to treat a variety of infectious diseases based on their specific field. There are PAs who are already focused on the field of infectious disease as well as PAs who regularly encounter patients with various infectious diseases throughout their practice. Additionally, many of the countries in need of health care support possess similar chronic, non-communicable disease burdens to the United States. Cancer, cardiovascular disease, chronic respiratory problems such as COPD and asthma, and diabetes are

diseases that are growing rapidly worldwide (Friedrich, 2015). One study estimated that by 2020, non-communicable diseases accounted for 7 out of every 10 deaths in developing countries (Boutayeb, 2006).

Non-communicable diseases are common, and all U.S. trained PAs are taught how to diagnose and treat disease and educate patients about these conditions. One study found that PAs and nurse practitioners were more likely to provide health education to patients with chronic illness than the physicians in the same clinic (Ritsema et al., 2014). Thus, PAs may have a profound impact in the care of patients with infectious disease as well as chronic disease globally.

### **Limitations**

Although there was a 56.2% survey response rate, there were many organizations that chose not to participate in this study. Nonparticipation narrows the population, and thus conclusions drawn from survey results may not be fully representative. Inherently, with a lower response rate, there may be a more limited range of data. However, since the received responses do not appear to be related in any particular manner, it is hoped that they comprise as random of a sample as possible.

Despite including exclusively U.S.-based organizations, some of the surveyed organizations' respondents were not native English speakers. Misinterpretation of survey questions has potential for the survey to have inaccurate responses and therefore give inconclusive results. Although it is difficult to quantify each respondent's English ability, the free text responses demonstrated that the vast majority were able to answer the survey questions.

Lastly, a survey study relies on respondents' completing the entire survey to the best of their ability and answering 100% of the survey questions. One limitation of this survey study is that we included surveys where the respondents did not answer 100% of the questions, most likely because those questions did not pertain to their organization, and the survey did not offer a "Not Applicable (NA)" response option. This changed the number (n) of the responses to individual questions and therefore limited the data interpretation.

### **Looking Toward the Future**

Many U.S. PA programs have developed collaborative partnerships with international universities in order to introduce the professional concept of the PA abroad, as well as to strengthen curriculum and clinical training of existing foreign PA programs. This strategy aims to begin to standardize the PA profession globally (Gillette et al., 2014). This initiative demonstrates that relief organizations are using PAs and have created long-term relationships with ministries of health and local providers globally. In turn, these organizations have influenced the development of the PA role as a solution for health care disparities and helped to develop and elucidate the PA role in developing countries. There is an opportunity with medical relief organizations to influence a country's health care infrastructure by introducing a successful PA model to local providers, MOHs, and health care systems.

### **Conclusion**

The majority of medical relief organizations utilize PAs as part of the health care team. The PA role contributes to mitigating barriers to health care in low- as well as high-resource countries. Globally minded organizations send medical personnel to countries with health care burdens and expose those countries to the PA provider model. The PA model of care has gained support in many countries around the world, and the success of the current model has shown the potential for the career to become more globally accepted. PAs expand access to care and are critical to the delivery of health care in the community (AAPA, 2018). Increased exposure to the PA role in countries that have an overwhelming need for health care relief may lead to further expansion and standardization of the career globally, while helping to solve the global health shortage crisis. Although more research needs to be done, medical relief organizations contribute to a global understanding of the role of the PA in improving access to health care across the globe.

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