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Editorial

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Health Care in Central America

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Abstract

Health care in low- to middle-income countries (LMICs) is different from high-income countries (HICs). For instance, the management of acute appendicitis in Northern Guatemala is different from hospitals in the US. Physical exam, spinal anesthesia, and an open appendectomy are common practices at a major referral hospital in El Peten Guatemala. In the US, computed tomography, general anesthesia, and a laparoscopic appendectomy are more common. Additionally, an antibiotic-first strategy is not currently accepted in hospitals in Guatemala. Similarly, the gold-standard operation for biliary colic in US hospitals is a laparoscopic cholecystectomy, whereas in Northern Guatemala, the most common approach is via an open approach. Current medical literature primarily focuses on HICs. Understanding common practices and barriers to adoption of HICs' strategies begins by having a conversation of health care practices in LMICs. Providing a cost-effective platform for LMICs to publish papers that directly relate to their patient population is pivotal in this discussion. The main goal of Aid Via Action Global Health Journal will be to provide an avenue to publish manuscripts in LMICs with an initial focus in Central America.

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Figure 1. Seven Central America countries are bordered in north by Mexico and the south by Colombia.

Introduction

With a population of over 50 million people in 2020,[1] Central America is bordered by Mexico in the north and by Colombia in the south (Figure 1). Based on Gross National Income, the World Bank classifies the world's economies into: (1) low income, (2) lower-middle income, (3) upper-middle income, and (4) high income countries.

Upper-middle income countries and lower-middle income countries are collectively known as middle-income countries (MICs). MICs house more than 75% of the world's population, which include 62% of the poorest people in the world. The challenges faced by MICs are similar and include, but are not limited to, population growth faster than infrastructure development, a lack of investment capital, a lack of skilled workers as well as problems faced by political instability and/or political corruption. According to the World Bank's 2022 report, Central American countries are classified as follows (population in 2020):[1]

1. Belize = Lower-middle income (397,628)
2. Costa Rica = Upper-middle income (5,094,118)
3. El Salvador = Lower-middle income (6,486,205)
4. Honduras = Lower-middle income (9,904,607)
5. Guatemala = Upper-middle income (17,915,568)
6. Nicaragua = Lower-middle income (6,624,554)
7. Panama = Upper-middle income (4,314,767)

MICs struggle as a result of an underdeveloped economy. This directly relates to poor economic health. Poor economic health leads to below-average life

expectancy, high infant mortality rates, poor educational outcomes, substandard infrastructure, degrading environmental and climate conditions, and inferior healthcare systems. Similarly, these countries suffer high rates of malnutrition and infectious illnesses due to lack of clean water, low sanitation levels, and inadequate access to quality medical care. Low- and middle-income countries (LMICs) suffer more severely from these issues.

My first experience with health care delivery outside of the United States was in Tegucigalpa, Honduras in 2012, which is considered a LMIC. I visited the Hospital Nacional de San Felipe (Figure 2) with Health Volunteers Overseas (HVO). The goal of the organization is based on bringing the best educational opportunities to LMICs. According to the HVO website, they are dedicated to improving the availability and quality of health care in resource-scare countries through the training, mentorship, and educational of local health professionals.[2] I had been practicing in the United States at the VA North Texas Health Care Center since 2005 and seeing health care delivered at an LMIC was a learning experience in many ways. The first impactful aspect of this experience was the number of wasteful resources in the United States compared to the hospital in Tegucigalpa. I am not proposing a solution to this problem and the current guidelines for safety in HICs prevent implementation of similar modalities in LMICs, such as re-sterilization of some disposable instruments from patient to patient and other strategies. The second surprising aspect of this trip was an issue of privacy. This is markedly different in LMICs compared to HICs. Patient autonomy is less respected in LMICs compared to HICs. Physicians in LMICs have a more paternalistic approach to patient care. Patients follow doctors' instructions more than patient's treatment desires. I vividly remember a patient who had a large intra-peritoneal tumor (likely arising from the pancreas) in a 70-year-old male patient. The surgical oncologist had the patient step out and discussed the prognosis and the inability to proceed with further treatment options with the son of the patient without discussing this with the patient.

There were also good things that I saw. First, physicians rely heavily of physical exam, something that is happening less and less in HICs as new diagnostic modalities are frequently introduced. I also liked that most patients came with all of their medical information (a chart) including films and notes from other visits. They kept this in their possession and brought it to each clinic visit.

In 2014, I visited two sites in India as my role of the surgery clerkship director where medical students had been undertaken elective global health rotations. One was in New Deli at the Medanta Hospital. This was a magnificent site that had a great number of operating rooms and received patients from surrounding countries to deliver affordable and high-quality medical care. The second one was in Bangalore at the Bangalore Baptist Hospital. This hospital delivers care to underserved populations. I remember that during an operation where I was an observer, a surgeon was performing a ventral hernia repair. The surgeon recognized that the hernia

Figure 2. Hospital Nacional de San Felipe, Tegucigalpa, Honduras.

was too large to repair via primary repair. He had to step out of the operating room to talk to the family to determine if they would be willing to pay the extra-cost for the mesh.

In 2019 and 2020 I visited the American University of Beirut and Mexico City at the Hospital Nacional Infantil Federico Gomez where I delivered talks regarding the non-operative management of acute appendicitis. These talks were poorly received at both institutions as the surgeons are not ready to treat a patient with acute appendicitis without an operation.

Today, the most challenging country that I have encountered delivering health care has been in Haiti. Where in 2020, I went with a group for a short mission trip to deliver primary care in Fort-Liberte. Haiti, a Caribbean country of roughly 11 million people, had a Gross Domestic Product (GDP) per capita of $870 in 2018, resulting in the label of poorest country in the Western Hemisphere. More than 6 million Haitians live below the poverty line, consuming less than $2.41 per day, with 2.5 million that live on less than $1.23 per

Figure 3. Hati.

day.[3-5] Compared to other countries in the Western Hemisphere, in 2014, 59% of the population in Guatemala lived below the poverty line (*vs.* 13.2% in the United States).[3-5] According to the CIA, more than 40% of the population lacks access to safe drinking water, with 72% without access to sanitation facilities.[5] In regard to healthcare, Haiti's Ministry of Health is plagued by poor administration, lack of access due to geographical or financial barriers, and shortage of qualified medical providers. Thus, most individuals rely on government subsided public hospitals.

The healthcare infrastructure is divided into three levels: 800 health centers and 45 community reference hospitals that provide primary care; 10 hospitals provide secondary care; 8 hospitals provide tertiary care.[4,5] Of the 900+ healthcare centers, 38% are public, 42% are private, and 20% are mixed.[5] However, due to lack of resources and proper coordination, there are significant differences in quality of care among these institutions.

Only fifteen minutes by car from the border to the Dominican Republic, Fort-Liberte is one of the oldest cities in Haiti where independence from the French was declared in 1803. There are two major hospitals in the entire region: one in Milot and one Fort-Liberte. The hospital in Milot is 50 kilometers from the clinic.

My experience in Fort-Liberte from January 12-18, 2020, was to provide primary care to local people who came to the clinic. Even though, I saw a high number of patients, my ability as a surgeon did not seem to be fully useful at this site. Clinic was from 8:30 am to 1:00 pm and then for 2:00 pm to 5:00 pm. The most common problems that I saw were vaginal infection, rash (scabies), diabetes, hypertension, malnutrition (hunger), and backache. As a surgeon, I performed a few procedures including: an incision and drainage of an axillary abscess (likely from hidradenitis), an excisional biopsy of a congenital scrotal lesion, suturing a laceration of the left wrist from a machete injury, an amputation of gangrenous toe from trauma. While there was a great deal of need for medical care in Hati, I did not find my full potential would be able to deliver the most care with my abilities.

Figure 4. Isla Flores in El Peten, Guatemala. HNSB is six miles from this site.

By this time, I had volunteered with a few non-profit organizations such as Health Volunteers Overseas Inc., Refuge International Inc., and The Friends of Fort-Liberte Inc. I had a general idea of the various mission statements of the organizations. In 2014, I traveled for the first time, to El Peten, Guatemala to assist with a mission trip at Hospital Nacional de San Benito (HNSB).

Figure 5. The front of HNSB in El Peten, Guatemala

Of 22 departments, El Peten is the largest in Guatemala. HNSB is a major referral hospital in the entire department. It is located about six miles from the beautiful island Flores (Figure 4), and it is 294 miles from Guatemala City by road.

HNSB is a 144 bed-hospital and has three operating rooms. The general surgeons perform around 250 general surgery operations a month (Figure 5). The most common operations performed by general surgeons are inguinal hernias, cholecystectomies and lower extremity amputations. My affinity for the hospital, the camaraderie of the surgeons, and the amazing patient population led to an immediate passion to continue to deliver care at HNSB (Figure 6).

Figure 6. During the repair of an inguinal hernia at HNSB with surgeons from the site.

I began traveling to the site several times a year and developed wonderful friendships with all the surgeons at the site. As a faculty member of global health at the University of Texas Southwestern (UTSW), I

have mentored four students who undertook research projects at HNSB: Juan Herrejon (2016), Corey Timmerman (2017), Arifa Plummer (2018), and Maria Ruiz (2019). Further, in 2016 two surgical residents from UTSW (Johnathan Imaran and Tarik Madni) accompanied me to HNSB during a short mission trip.

An immediate notable initial difference at HNSB compared to US hospitals was almost exclusive open approach compared to laparoscopy. For instance, most cholecystectomies are performed under regional anesthesia and open, even for elective cases.[6] We immediately investigated barriers that led to this discrepancy.[7] We also noticed that the management of acute appendicitis at HNSB was substantially different from US including diagnosis, anesthesia, and treatment.

Figure 7. Delivering at talk at HNSB to surgical staff and medical students regarding the NOM of acute appendicitis

All appendectomies are HNSB are diagnosed exclusively via physical examination in the absence of computed tomography (CT). Though, sonography is sometimes employed. Most patients undergo surgical interventions under regional anesthesia via the open approach.[8,9] An antibiotic-first approach to acute appendicitis is currently not accepted at HNSB (Figure 7).[10]

Similarly, in contrast to the US, most inguinal hernias at HNSB are undertaken under regional rather than general anesthesia.[11] We have also noticed that the rate of incarceration at HNSB for inguinal hernias is higher compared to hospitals in the US.[11]

Today we have been able to published five peer-reviewed manuscripts dealing with issues directly related to care at HNSB.[6-9,11] Further, three letters to the editor have been published addressing issues with health care delivery at HNSB.[10,12,13] All of these manuscripts have been published with medical students and/or residents. They all included surgeons from HNSB.

These experiences have been pivotal to recognize the tremendous need to provide a platform to publish manuscripts that directly address health care issues in Central America. We cannot find solutions if we do not ask the appropriate questions. We cannot ask appropriate questions if we do not have information regarding the current status of health care.

The main goal of Aid Via Action Global Health Journal will be to provide an opportunity for health care providers in Central America to publish articles regarding their health care issues. We will, however, accept manuscripts from other LIMCs in our overall aim to minimize the gap imposed by geography in the delivery of health care.

We look forward to your submissions:

Sincerely,

Sergio Huerta, MD, FACS
Editor-in-Chief
Aid Via Action Global Health Journal

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