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Collaboration in Outreach
The Kumasi, Ghana, Model

Brittany J. Behar, MD[a], Oheneba Owusu Danso, MD[b], Boutros Farhat, MD[c], Vincent Ativor, MD[c], Joshua Abzug, MD[d,e], Donald H. Lalonde, MD[f,*]

KEYWORDS

- Cultural competency • Global surgery • Surgical outreach • Surgery mission • WALANT
- Field sterility • Wide-awake hand surgery

KEY POINTS

- Surgeons from North America and Ghana collaborated to establish an affordable wide-awake hand surgery room with evidence-based field sterility in Kumasi, Ghana, as it is practiced in North America.
- The hand surgery organizations American Association for Surgery of the Hand and American Society for Surgery of the Hand are collaborating with Kumasi hand surgeons, therapists, and Health Volunteers Overseas to exchange knowledge through visiting surgeons, therapists, and transatlantic videoconferencing.
- Surgical outreach trips should not only provide surgical treatment to a set of in-need patients but should also aim to share knowledge and connect with surgeons and therapists at the host facility to improve access for adequate surgical care.
- Adaptability, open-mindedness, and culturally sensitive communication are all necessary to a successful global surgery trip. These skills should be introduced and practiced by volunteer groups before embarking on organized trips.

INTRODUCTION

The burden of surgical disease in low-income and middle-income countries is increasing, with an estimated unmet need of 3300 to 6400 operations per 100,000 people.[1] Barriers to access to surgical treatment include lack of facilities, equipment, and expertise in low-income and middle-income hospitals.[2] As this unmet need is increasingly recognized, physicians and caregivers from high-income countries are participating in more and more outreach trips as a way of closing the surgical burden gap. With this growing interest, global surgery overall is transforming from short-term mission trips to long-term capacity-building partnerships.[3] A shifting paradigm is moving global surgery from a vertical model of disaster response and mission work toward building systems of surgical care, with trainee development programs as an integral part of the solution to inadequate surgical care access.[4]

This article describes a collaborative effort of Ghanaian, Canadian, and American hand surgeons and therapists; Health Volunteers Overseas (HVO); the American Association for Hand Surgery (AAHS); and the American Society for Surgery of the Hand (ASSH) to establish more affordable,

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[a] Hospital of the University of Pennsylvania, 3737 Market Street, Philadelphia, PA 19104, USA; [b] Komfo Anokye Teaching Hospital, PO Box 1934, Kumasi, Ghana; [c] Komfo Anokye Teaching Hospital, PO Box 1934, Kumasi, Ghana; [d] Department of Orthopedics, University of Maryland School of Medicine, One Texas Station Court, Suite 300, Timonium, MD 21093 USA; [e] Department of Pediatrics, University of Maryland School of Medicine, One Texas Station Court, Suite 300, Timonium, MD 21093 USA; [f] Dalhousie University, 600 Main Street Suite C204, Saint John, New Brunswick E2K 1J5, Canada
* Corresponding author.
E-mail address: dlalonde@drlalonde.ca

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safe, evidence-based hand surgery in Kumasi, Ghana. Surgeons from North America and Ghana collaborated to establish an affordable evidence-based field sterility wide-awake hand surgery room in Kumasi Ghana, as it is practiced in North America.[5–7] The most expensive parts of hand surgery are the sedation and the full operating room sterility.[8–10] Neither is essential for most hand surgery today.[11] The American hand surgery organizations AAHS and ASSH are collaborating with Kumasi hand surgeons and therapists and HVO to share knowledge in Kumasi through visiting surgeons and transatlantic videoconferencing on a regular basis. The long-term goal is to establish the first West African Hand Surgery fellowship in Kumasi, Ghana.

THE KUMASI, GHANA, MODEL

In 2012, the AAHS president-elect Dr Don Lalonde, in collaboration with HVO, visited Kumasi, Ghana, with the hope of establishing a reverse fellowship in hand surgery. A normal fellowship usually involves taking an international fellow to an established hand surgery center in North America or Europe. A reverse fellowship involves taking the teachers to the residents and fellows in the country where there is no established fellowship training. This concept brings knowledge to the home environment where locally trained surgeons and therapists are more likely to stay home and help people who lack access to care.

TRANS-ATLANTIC WEBINAR SERIES WITH AMERICAN ASSOCIATION FOR SURGERY OF THE HAND

The AAHS and Josh Abzug (United States) have worked with Oheneba Owusu Danso, Boutros Farhat, and Vincent Ativor of Kumasi to create a series of weekly Webinars in hand surgery and therapy that have been running successfully for 4 years. These Webinars cover the full range of hand surgery and hand therapy. They are coordinated from Baltimore and Boston and transmitted to Kumasi, Ghana, weekly, with the exception of the summer.

The AAHS formally partnered with the Komfo Anokye Teaching Hospital in Kumasi, Ghana, in 2015 to attempt to provide formal education to the attending physicians, hand surgery fellows, residents, medical students, and therapists. This relationship was initially developed based on the connection Dr Lalonde had developed following medical mission trips to this hospital. The concept was to provide a weekly conference for the care providers in Kumasi using a customary North American approach. For this to occur, a stable Internet connection would be necessary, as well as live streaming capabilities in Kumasi. The first step in assessing this was procurement of a program that would provide the opportunity to share PowerPoint slides, as well as provide a live streaming feed to another site. Essentially, a Webinar would be given on a weekly basis to the care providers in Kumasi that would enable real-time feedback to permit questions to be asked and answered, as well as discussion of any upcoming challenging cases.

Following the procurement of the appropriate software and the establishment of a time and location to give the weekly lecture series, the Internet connection was assessed and found to be suitable. The next step was the creation of an academic schedule and then obtaining the appropriate speakers. To accomplish this task, the AAHS education committee developed a curriculum for the hand surgery providers in Kumasi, analogous to a hand surgery fellowship or resident curriculum in North America, beginning with anatomy and then getting into more complex hand surgery topics. After the curriculum was developed, a survey was sent out to the membership of the AAHS to permit members to sign up for 1 to 2 lectures during the year. Within a few weeks, more than 40 members had agreed to give the approximately 50 lectures during the year. The program was now set to begin providing typical North American weekly educational conferences in an underdeveloped part of Africa.

The first several lectures were fraught with numerous issues that led to much frustration. There were times that the AAHS member and assisting staff were logged in but the colleagues in Kumasi were not, as well as times that there were Internet connection issues. Additionally, there were several weeks of holidays and funerals in Kumasi that the AAHS staff and speakers were unaware of, leading to several weeks of having a North American surgeon volunteer taking an hour out of their day after preparing a lecture and then having no one to lecture to. Occasionally, the lectures were able to be rescheduled but more often than not the lecture was just canceled. At the end of the first year, only approximately 50% of the lectures were given. However, the appreciation and acknowledgment of the colleagues in Kumasi led to the desire to continue on.

In 2016, Dr Lalonde visited Kumasi and discussed the lecture cycle with colleagues in Kumasi. Internet issues and scheduling conflicts were resolved. The AAHS and Kumasi leaders had worked out a better time and location that

would be more reliable. Additionally, the AAHS staff were made aware of the various holidays in Kumasi and were able to create a schedule around them. Therefore, the second year ran much more smoothly. Colleagues in Kumasi were more engaged and able to attend many more lectures. However, approximately 20% of the lectures still had various issues, including no attendance, difficulty connecting via the Internet, and so forth.

Fortunately, the mission of the AAHS is "Working together to advance global hand care and education." As such, the collaborators have persisted and are currently beginning the fourth year of weekly lectures provided by AAHS members to Kumasi, Ghana. Over the last year, more than 90% of the scheduled lectures have been given without any issues. The attending physicians, trainees, and therapists in Kumasi are truly grateful for the education they are receiving at no cost and for the ability to interact with North American colleagues. Relationships have grown and additional sites will be added to continue to advance global hand care and education.

HAND THERAPY DEVELOPMENT IN KUMASI

Since 2014, more than a dozen hand therapists from Canada and the United States have spent at least a week in Kumasi to help begin hand therapy. Many have received funding from the AAHS. These include Gayle Severance, Heather Wood, Adam Creiling, Brian Wilkerson, Paul Bonzani, Rajani Sharma, Lisa Flewelling, Catherine Sullivan, Cynthia Cooper, Jenna Millman, Courtney Middleton, and Kelly Godwin. With their efforts, Robert Sowa has become the first dedicated hand therapist in Kumasi. He now attends hand surgery clinics with the hand surgeons in Kumasi to coordinate care of complex hand-injured patients.

SURGEONS, FELLOWS, AND PLASTIC-ORTHOPEDIC RESIDENTS WHO VISIT KUMASI FOR KNOWLEDGE EXCHANGE

Since 2014, HVO, AAHS, and ASSH have contributed a steady stream of hand surgeons, fellows, and plastic-orthopedic residents who visit Kumasi for knowledge exchange. They are dedicated to hand surgery. They spent time lecturing, operating with, and learning from the general surgery, plastic surgery, and orthopedic surgery residents and surgeons, as well as hand therapists, in Kumasi, on the care of the hand.

ESTABLISHMENT OF FIELD STERILITY

Evidence-based field sterility has been gradually replacing main operating room sterility for much of hand surgery in Canada for 40 years, with no increase in complications but a significant decrease in expense and garbage production.[12] Many surgeons in many countries have begun to move this way.[13,14]

Dr Lalonde returned to Kumasi in 2016 and 2017 to help establish wide-awake hand surgery with field sterility outside the main operating room, as it is practiced in Canada. Before that, the main operating room with obligatory full sterility and sedation were the only way to provide hand surgery. This was not financially attainable by most of the population. Discussions were held with all the surgical groups and the hospital administration in 2016 to consider adopting the North American model in which much simple hand surgery and trauma is being moved out of the main operating room to much less expensive minor procedure rooms with a wide-awake, local anesthesia, no tourniquet (WALANT) approach. The hospital administration agreed to this concept after reviewing presentations of evidence-based sterility and the North American experience.

In February of 2017, a previous burn unit room just outside of the main operating room at KATH was converted to a wide-awake hand surgery room and the first cases were performed. Since then, that room has been very busy with, not only hand surgery, but also other cases performed under local anesthesia. In the first year of its existence, more than 360 surgeries were performed in that room at a much lower cost for local patients who can now afford hand reconstruction after injuries.

ESTABLISHMENT OF A WEST AFRICAN HAND SURGERY FELLOWSHIP PROGRAM

Dr Brad Rockwell (University of Utah, Salt Lake City, Utah) is working in collaboration with the Dr Lalonde, the AAHS, the ASSH, Dr Oheneba Owusu-Danso, Dr Paa Ekow Hoyte-Williams, Dr Boutros Farhat, and Dr Pius Agbenorku of the Ghana College of Physicians and Surgeons to establish the first hand surgery fellowship site in Northwest Africa in Kumasi, Ghana. The model works on the reverse fellowship type format in which North Americans collaborate with Ghanaians to make this happen in Ghana.

DISCUSSION

Hand surgery does not have to be expensive. The advent of evidence-based sterility and wide-

awake hand surgery has greatly reduced the cost of hand surgery and the need for sedation. This article discusses how North American hand surgeons have collaborated with hand surgeons from Ghana to help establish new educational models that use the Internet and a structured visiting surgeon and therapist program to improve hand care and accessibility to patients in Ghana using these new advances. Programs of this kind must be established with cultural sensitivity and competency.

Cultural competency is defined as an elevated level of knowledge of and appropriate response to varying cultures that allows health care workers to interact with patients from various cultural backgrounds.[15] This skill provides health care workers with an approach for being receptive, empathetic, and compassionate to a variety of ideas, customs, and lifestyles of the patients they are treating.[16] Tervalon and Murray-Garcia[17] note that a better implementation of this in clinical practice is a commitment and an active engagement in a lifelong process that physicians embark on with their patients rather than a discrete endpoint. Curriculums designed to focus on cultural competence aim to increase students' awareness of their own cultural backgrounds and other cultures via self-reflection, cultural vignettes, and shared narratives.[18]

Four specific elements contribute to cultural competency: (1) culturally appropriate communication, (2) situational and self-awareness, (3) adaptability, and (4) knowledge about core cultural issues.[19] Cultural norms may dictate what behavior is acceptable; for example, what questions are appropriate to ask during a patient history and examination, what attire is worn (or not) in the operating suite, and what level of supervision is acceptable for trainees during surgery. Appropriate communication can dictate a patient's comfort level with the surgery. For instance, several investigators showed that 9% to 33% of patients in foreign countries are afraid of surgery.[2] However, in 1 study, changing the description for eye surgery to washing of cataract increased patients' willingness to have a procedure.[20] Patients may also have specific cultural beliefs surrounding a specific surgical condition or feel that traditional healers are better equipped to treat them. For example, a belief that blindness from cataracts is God's will or is due to witchcraft and thus incurable will prevent patients from seeking surgical treatment.[21] Students and physicians may anticipate differences in clothing and food but may not anticipate the major differences in cultural values in medical treatment expressed at the local hospitals compared with those at their home institution.[22] It is critical to prepare for any outreach trip by focusing on honing these skills and anticipating the unanticipated.

Global health trips teach visiting physicians to understand resource allocation and system-based medicine, especially in regions that lack adequate access to surgical care. Physicians must have several operative options in anticipation of lack of access to equipment normally available at home institutions. Treating a surgical problem with little to no equipment is critical to a successful trip. It must be highlighted though that global surgery trips can evolve into medical tourism easily. Medical tourism is defined as "participation in an international clinical health experience in a resource-poor destination by a trainee from a high-income country where the net gain favors the trainee participant and insufficient consideration is given to the needs…of the host country."[23] Establishing clear-cut goals before departure, adequately educating the volunteering medical team, and anticipating the needs of the host country can help avoid this imbalanced experience. Understanding that certain resources are sometimes unavailable, such as fluoroscopy, a surgical microscope, or a specific necessary suture, can temper patient and hospital expectations. Operative management plans shared with the host surgical team are more likely to be implemented after the visiting team when less complex solutions are offered.[24]

Surgeons must not only travel and operate with relevant skills and knowledge but also with ethical and legal expectations of standard practices.[25] It is critical that surgeons try to uphold their standard of ethical and moral treatment of their foreign patients, even if unethical treatment is accepted otherwise. The best surgical treatment options, considering all resources available, should always be offered, even if it is more difficult or complex. Although malpractice is rare and unlikely, the volunteer physician should uphold his or her standards despite this in all operative endeavors they pursue.

SUMMARY

Global surgical outreach trips are growing in popularity. The primary goal of these trips is shifting from short-term surgical treatment of a select group, to more sustainable surgical interventions, including setting up of uncomplicated facilities, focusing on resident and health care

worker education, and establishing long-term working relationships between lower income hospitals and high-income facilities. These goals are contingent on mutual respect among care takers, as well as open-mindedness toward host country's teaching styles, trainee expectations, patients' cultural understanding of their diseases, and adaptability to acute situations, including lack of necessary instruments and supplies.

Without these skill sets, physicians are unable to become culturally competent and fulfill their goals during surgical mission work. Volunteers should receive education and training before global outreach trips focusing on how to be adaptable and open-minded, and how to use culturally appropriate communication. Without these skills, volunteers may become frustrated or feel unfilled with their experience and avoid additional outreach projects. A little preparation and training can make volunteer experiences even more fulfilling and promote more long-lasting relationships between the host medical team and the visiting medical team.

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