Published in final edited form as:

Ann Plast Surg. 2014 January ; 72(1): 108–112. doi:10.1097/SAP.0b013e31826aefc7.

Building Surgical Capacity in Low Resource Countries: A Qualitative Analysis of Task Shifting from Surgeon Volunteers' Perspectives

Oluseyi Aliu, MD[1], **Scott D. Corlew, MD, MPH**[2], **Michele E. Heisler, MD, MPA**[3], **Christopher J. Pannucci, MD, MS**[4], and **Kevin C. Chung, MD, MS**[5]

[1]Resident, Section of Plastic Surgery, Department of Surgery, The University of Michigan Health System, Ann Arbor, Michigan

[2]Chief Medical Officer, ReSurge International, Mountain View, California

[3]Associate Professor, Department of Internal Medicine, The University of Michigan Health System, Ann Arbor, Michigan

[4]Resident, Section of Plastic Surgery, Department of Surgery, The University of Michigan Health System, Ann Arbor, Michigan

[5]Professor, Section of Plastic Surgery, Department of Surgery, The University of Michigan Health System, Ann Arbor, Michigan

Abstract

Surgical volunteer organizations (SVOs) focus considerable resources on addressing the backlog of cases in low-resource countries. This model of service may perpetuate dependency. Efforts should focus on models that establish independence in providing surgical care.[1] Independence could be achieved through surgical capacity building. However, there has been scant discussion in literature on SVO involvement in surgical capacity building.

Using qualitative methods, we evaluated the perspectives of surgeons with extensive volunteer experience in low-resource countries. We collected data through in-depth interviews that centered on SVOs using task shifting as a tool for surgical capacity building.

Some of the key themes from our analysis include the ethical ramifications of task shifting, the challenges of addressing technical and clinical education in capacity building for low resource settings, and the allocation of limited volunteer resources toward surgical capacity building.

These themes will be the foundation of subsequent studies that will focus on other stakeholders in surgical capacity building including host communities and SVO administrators.

Corresponding author and reprint requests sent to: Kevin C. Chung, MD, MS, Section of Plastic Surgery, The University of Michigan Health System, 1500 E. Medical Center Drive, 2130 Taubman Center, SPC 5340, Ann Arbor, MI 48109-5340, Phone: 734-936-5885, Fax: 734-763-5354, kecchung@med.umich.edu.

Keywords

capacity building; education; ethics; delegation; healthcare workforce; logistics; mandate; providers; resource allocation; surgery volunteer organizations; task shifting

INTRODUCTION

International surgical volunteer organizations (SVOs) have a long history of providing services in many developing countries. Although reliable measurements of their impact are lacking, there is agreement that their contribution to lessening the burden of surgical disease in developing countries is substantial.[2] Generally, SVOs are service oriented and address surgical case backlogs by forging relationships with and conducting service trips to communities of interest. Currently in development circles, there is emphasis on capacity building which would mean shifting the focus of SVOs towards education and training of local providers to eliminate reliance on volunteer services.[3] Some organizations have taken steps to address capacity building by adding educational components to their service model.[4,5]

Because the severe shortage of healthcare providers is a major impediment to surgical care in developing countries, capacity building measures must address this issue.[6,7] Task shifting is one way to increase the capacity of surgical providers. Task shifting is a process of delegation whereby appropriate healthcare related tasks are shifted to a less specialized cadre of workers with the goal of improving access to care with reorganization of the workforce and redefinition of duties.[8] The potential advantages are that it is expeditious and incurs lower cost compared to traditional clinical training.[9] This approach has been endorsed by the World Health Organization (WHO) to scale up HIV/AIDS prevention and treatment programs hampered by lack of healthcare providers.[10–12] Furthermore, task shifting is formally used to improve access to mental health and emergency obstetric services in some countries.[13,14] Although there are reports of task shifting in surgical disciplines, there has been little in-depth discussion about broader scale implementation of surgical task shifting and the role of volunteer surgeons in it.[15–17]

In this study we used qualitative methods to assess task shifting as a potential way to address the shortage of surgery providers in developing countries. Furthermore, we were interested in understanding what roles volunteer surgeons should play in capacity building efforts. Through interviews with volunteer surgeons with extensive volunteer experience providing reconstructive surgical care in developing countries, we sought to highlight important issues that must be considered in discussions about capacity building through task shifting.

MATERIALS AND METHODS

Surgical capacity building is a complex subject about which there is a paucity of information in literature. This dearth of information makes our study exploratory, and therefore we applied qualitative methods to generate hypotheses to guide future investigations.[18] We used grounded theory, a framework for qualitative studies characterized by development of hypotheses through the process of data analysis.[19] Hypotheses were not established a priori.

In the exploratory context of this study, hypotheses that emerge from data analysis are likelier to be closer to "reality" than preformed hypotheses.[19]

We used a purposeful criterion sampling method.[20] This method stipulates that participants should be selected because they have a particular characteristic that would help shed light on the issue to be studied.[20] Our criterion was significant volunteer experience providing surgical care in developing countries (participants volunteered in an average of 7 countries). Using this criterion ensured that participants had considerable insight into the challenges of providing surgical care in developing countries and were capable of in-depth discussion on the subject.

We generated information-rich data transcripts using semi-structured interviews designed to allow participants to provide elaborate answers to our prompts. This method is widely used in qualitative studies where subject matter experts are the data sources.[18,21] We anticipated achieving information-saturation with 8 to 10 participants.[22] Information saturation in a qualitative study occurs when investigators do not gain additional information from newly sampled participants.[22] We did not offer any incentives for participation and we obtained human subjects exemption from our institutional review board.

Prior to each interview, we provided an interview guide via electronic mail to participants in order to familiarize them with the items for discussion and hence focus the interview. We interviewed 11 volunteer surgeons with mean interview duration of 36.6 minutes (range: 20.1–50.7). All interviews were conducted by the lead investigator (OA) and recorded on a digital device with the permission of participants. A research assistant transcribed the interviews verbatim and the interviewer (OA) verified the accuracy of the transcriptions.

Two members of the study team (OA and CJP) with Masters' level training in qualitative methods undertook analysis of the interview transcripts. First, both individuals independently developed preliminary coding schemes from analysis of the same 3 interview transcripts through an iterative process.[18] Coding schemes categorize and group participant answers based on study themes that they address (figure 1). The analysis team thoroughly discussed their preliminary coding schemes and identified areas of convergence and divergence. Discrepancies were reconciled through consensus. This process led to development of a final coding scheme that was applied to all interview transcripts.

RESULTS

Eleven volunteer surgeons participated in the study (Table 1). All eleven of the participants interviewed were reconstructive surgeons who cared for oro-facial clefts, burns and hand conditions. There were 8 male and 3 female participants. Ten of the participants are actively practicing surgeons and one is retired. Seven surgeons currently practice within the United States and three outside the United States. The majority of the participants practiced in private settings in urban areas and on average had volunteered in 7 different countries (Table 1). Most study participants work with multiple SVOs.

We identified approximately 30 codes under 9 broad categories shown in Table 2. The results presented in this manuscript will focus on 1) potential challenges to broad scale

implementation of task shifting as a capacity building measure and 2) the roles of volunteer surgeons in capacity building efforts.

PARTICIPANT RESPONSES TO CAPACITY BUILDING MEASURES INVOLVING SURGERY VOLUNTEER ORGANIZATIONS

Mandate/Philosophy (table 3)

Some participants thought the mandate of SVOs should be focused on providing care. In other words, they thought SVOs should not engage in advocating changes to the healthcare delivery system in developing countries. There was support amongst most volunteers for educating local peers when available. This practice was widely thought to be within the purview of a "service" mandate. However participants who thought SVOs should focus on providing care viewed the idea of redefining roles in surgical care delivery, as task shifting would do, to be "mission creep". These participants felt that this would have implications like involvement in public health policy making which oversteps the mission of their volunteer organizations.

Education/Training (table 3)

There was general agreement that a standard of basic clinical knowledge should be established as many volunteers found this lacking especially with ancillary care. Some participants stated that establishing basic clinical knowledge among existing practitioners rather than expansion of the healthcare workforce should be the primary focus of discussion. Opinions were split on delegating procedural tasks to a cadre of lower skilled providers. Some volunteers thought that technical tasks could be easily taught to and mastered by lower skill providers without traditional surgical training. This group believes mastery of surgical skills would mostly require exposure and repetition of tasks. The other group of volunteers thought that training lower skilled providers is not a sound solution. Surgeons in this group thought that specialty surgical procedures especially, such as oro-facial clefts and acute burn care, were too complex for lower skilled providers to be adequately trained. They viewed comprehensive medical training as requisite for technical competence in surgery in general.

However, regardless of their opinions about the ease of learning surgical techniques, the majority of surgeons expressed concern about the need for clinical knowledge among lower skilled providers. They envisioned that the practice of lower skilled surgery providers would necessarily be algorithmic and worried that these providers would not have the requisite clinical knowledge to troubleshoot and problem-solve when clinical conditions acutely deviated from an expected course.

Ethics/Legal (table 3)

Some participants saw task delegation to lower skilled providers plainly as substandard care because they would not have an equivalent to the standard of board certification. Participants who considered task shifting a reasonable option were concerned that inferior surgical outcomes might be justified by balancing against the benefits of expanded access with lower skilled providers. They thought this issue would be of particular concern in the

early implementation phases of task shifting when they predict much higher complication rates as a result of the learning curve. Some participants thought that task shifting to non-surgeon physicians might be better as they would have a medical background. However, task shifting to non-surgeon physicians raised concerns about diminishing the availability of primary care providers because these providers will have the added burden of surgical tasks.

Several participants expressed concerns about unregulated use of acquired skills by non-physicians in lucrative black markets. One participant used the analogy of lucrative aesthetic surgical services offered by individuals without formal training in a country like the United States that has robust regulations. Participants were concerned that countries with fewer resources would find formidable challenges in delineating scope of practice for non-physician providers and establishing sound regulations protecting patients under the care of non-physician providers.

Lastly, one participant highlighted the lack of a legal framework for establishing task shifting in many countries. The participant pointed out that this lack of legal framework would render non-physician providers and surgery volunteer organizations liable to complaints and litigation in the event of adverse outcomes. Related concerns that were highlighted include the expense and difficulty of putting up legal frameworks and the indemnity coverage that would be required. Lastly, some volunteers expressed the concern that non-physician providers and surgery volunteer organizations would be frequent and visible targets for criticism from local authorities and individuals such as local professionals who would view them as threats or competition.

Volunteer services resource allocation (table 3)

Several participants thought that current resource allocation associated with surgical volunteer efforts is not efficient. Firstly, many volunteer efforts are clustered in locations with fair infrastructure and resources and that results in duplication of efforts across various organizations. It also results in high concentration of resources in relatively few places. Secondly, most participants highlighted the lack of collaborative coordination of services across organizations. They recognized the limitations in the impact of singular volunteer organizations and generally believed that more could be accomplished with better coordination of services and collaborative resources management. Thirdly, some volunteers thought that the service-oriented mandate of many volunteer organizations results in a larger portion of resources allocated to service projects rather than teaching and training oriented projects. Some believed this skewed allocation might be at odds with the idea of capacity building even though some education occurs during service-oriented projects. Finally, two participants point out that current resource allocation for treating the overall burden of disease in developing countries gives low priority to surgical diseases.

Logistics and Partnerships (table 3)

Most participants addressed the logistics of implementing a capacity building scheme. One highlighted concern is the difficulty of financing a scheme including establishing educational and regulatory infrastructures with already limited fiscal resources. Additionally, coordination of care across disciplines such as referral from a primary care to

specialist providers and across time such as post-operative follow-up care require sophisticated logistical inputs that are lacking in many developing countries. Lastly, participants discussed the possibility of partnerships between surgery volunteer organizations and a variety of entities such as local governments, global health stakeholders, other volunteer organizations and professional associations. They point out that a lack of these partnerships is a loss of potential to conduct more impactful projects. Highlighted benefits of partnership include better coordination of services, efficient use of human resources and material resources such as durable medical equipment and a collaborative approach to building comprehensive surgical care delivery. Participants generally believed that much less is accomplished without these partnerships.

DISCUSSION

SVOs tackle a substantial portion of the surgical burden of disease in many developing countries [2]. In light of their significant contribution, efforts to improve surgical capacity in developing countries will partially depend on SVOs until independent systems are in place. If SVOs are to participate in capacity building, they will likely require a paradigm shift in the way they work in developing countries which means shifting focus more towards improving healthcare delivery systems. The results of this study suggest that volunteer surgeons, who would be at the vanguard of redefining the focus of SVOs in low resource communities, have some doubts about their potential role in healthcare delivery capacity building (table 3).

One overarching question was whether or not SVOs should be involved in healthcare delivery capacity building to begin with or to stay focused on providing surgical services as is currently mostly practiced. In this study, there was a pervasive skepticism about expanding the limits of involvement of SVOs in low resource communities. One salient concern about any expansion of SVO mandate was the potential for the expansion to be received negatively by local providers and host communities in general. Moreover, there were concerns that it would be difficult to charge clinicians, who are expert at the delivery of surgical care, with administration of capacity building programs that require a different set of skills. The summation of this concern is simply that SVOs are expert service-providing organizations with understandable apprehensions about assuming any roles beyond this purview. Lastly, task shifting as a surgical capacity building tool itself raised some concerns. A lower quality of care that study participants presumed would be the result of surgical task shifting was one of the more prevalent concerns.

Having said that, examining the example of HIV/AIDS related work of non-governmental organizations (NGOs) in low resource communities demonstrates a pervasive emphasis on healthcare delivery capacity building.[23,24] Also notable is that many of the healthcare delivery capacity building in HIV/ADIS programs have indeed used task shifting as a tool.[25] We therefore believe it is realistic to expect a similar emphasis for SVOs and hence work towards addressing some of the concerns to SVO involvement in healthcare delivery capacity building raised in this study. Our first step would be to use qualitative research methods to gain the perspective of host community stakeholders such as local healthcare providers on SVO involvement in surgical capacity building, including the use of methods

like task shifting. From the results of such a study, we would directly learn of host community stakeholder's concerns with SVO involvement in capacity building, outline the limits they would expect for SVO efforts and learn how to maximize local participation to ensure that capacity building is truly local and sustainable. From that study, we can ultimately learn how to include the concept of surgical capacity building in initial conversations with potential host sites in low resource communities.

Additionally, we believe there is value in getting SVO administrative perspectives regarding potential involvement in healthcare delivery capacity building. After all, any decision to shift focus towards health delivery system improvement will be substantively influenced by the administrators of SVOs such as chief medical officers and development officers. In the design of that study, we will reference the approaches used by HIV/AIDS related NGOs involved in capacity building, because they are the best examples. We will set out to understand from SVO administrators what practical administrative issues are involved in shifting their focus towards surgical capacity building. We will also introduce items derived from participant responses about SVO administration in this current study. Some of the relevant points on administration that emerged from our analyses include; consolidation of SVO operations, partnership with development minded organizations and increased engagement with policy makers in host communities to plan capacity building programs. We believe that the best way to explore the feasibility of these ideas is through detailed and systematic inquiry of administrative experts.

Lastly, we believe that the highlighted challenges with task shifting (table 3) also have to be examined from multiple perspectives. Interview items in this study's protocol included a discussion of workable solutions to the identified challenges of surgical task shifting which provide us with the volunteer surgeons' perspective. These participant responses are currently being analyzed and will be subsequently reported. Additionally, in our planned study of host community stakeholders, we will also examine the challenges of SVO involvement in surgical task shifting especially because there are precedents, although few, with surgical task shifting in some low resource settings.[15–17]

This study has limitations. We interviewed only reconstructive surgeons hence the range of procedures and surgical conditions that provided the basis for discussion about task shifting was limited. Most participants discussed task shifting in the context of burn, hand and oro-facial cleft reconstructions and this is not representative of the range of complexity or simplicity of all surgical conditions treated in low resource communities.

CONCLUSION

The themes regarding surgical capacity building identified by participants in this study have drawn our attention to specific areas where it is imperative to gain the perspective of other important stakeholders such as host community providers and leaders. For host community stakeholders, some of the crucial issues to gain perspective on include how much SVO involvement is acceptable and what role host community institutions are to play in surgical capacity building schemes. Additionally, it is important to understand from SVO administrators how strategies raised by study participants such as coordination of operations

between SVOs and collaboration with development organizations such as the World Health Organization (WHO) can be made feasible to enhance their ability to get involved in surgical capacity building.

Acknowledgments

Supported in part by a Midcareer Investigator Award in Patient-Oriented Research (K24AR053120) and 2R01AR047328 - 06 from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), and R01AR062066 from NIAMS and the National Institute on Aging (to Dr. Kevin C. Chung).

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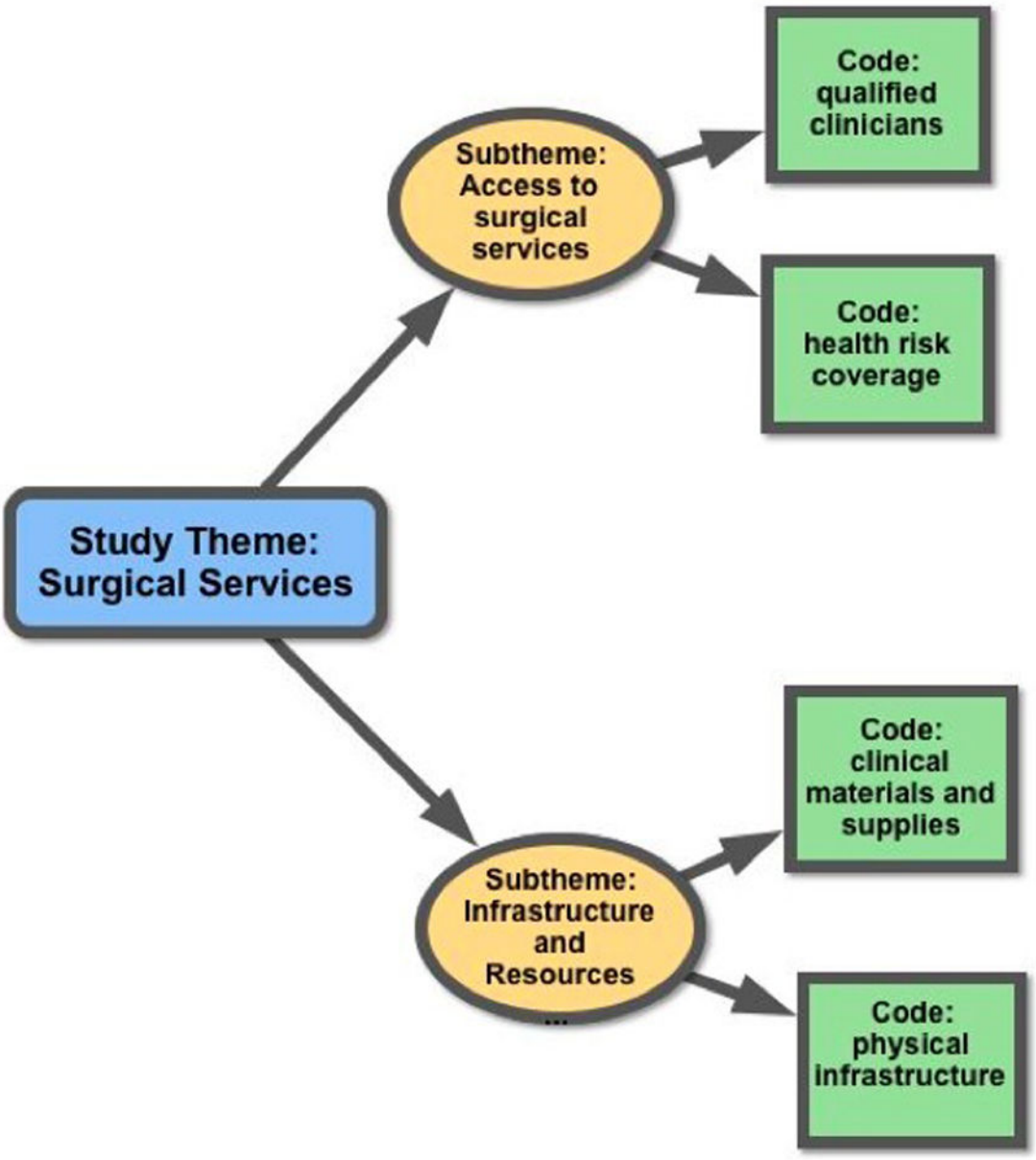

Figure 1.

An example of a coding scheme used in this qualitative study. This figure shows the relationship of study themes and subthemes to codes that emerged from discussions with study participants. We began without an a priori hypothesis and set out to discuss challenges associated with surgical services in developing world communities. Subthemes and codes emerged from these discussions and thus we may form hypotheses by relating them.

Table 1

Characteristics of study participants (N=11)

Sex (M/F)	**8/3**
Years in Practice	**22.8 (9 – 34)**
Board Certification	
Plastic/Reconstructive Surgery	**11**
Otolaryngology	**1**
General Surgery	**2**
Multiple Certifications†	**3**
Practice Type	
Private	**8**
Academic	**2**
Retired	**1**
Practice Location	
North America††	**8**
Europe	**1**
Australia/New Zealand	**1**
South America	**1**
Asia	**-**
Africa	**-**
Number of Countries Visited/Surgeon†††	**6.8 (3 – 12)**
Volunteer with Multiple SVOs††††	
≥ 2 SVOs	**7**

† Multiple certifications include plastic surgery and 1 of 2 other disciplines: otolaryngology, and general surgery.

†† North American participants all practice in the United States.

††† Examples of countries visited by volunteers: Bangladesh, Brazil, China, Columbia, Ecuador, Ghana, Haiti, Honduras, Lao PDR, Malawi, Mali, Myanmar, Nicaragua, Peru, South Africa, Tonga, Vietnam and Zambia.

†††† Surgery Volunteer Organizations.

Table 2

Broad code categories developed from interview transcript analyses

Challenges Specific to Surgical Task Shifting†	Systemic Impediments to Surgical Care
Mandate/Philosophy of surgery volunteer organizations (SVOs)	Access to surgical care (e.g. qualified personnel, payment for services etc.)
Education/Training	Infrastructure/Material resources (e.g. equipped hospitals, medical equipment etc.)
Ethical/Legal issues	Socio-political (e.g. civil strife, military conflicts and labor disputes etc.)
Resource allocation	Economic (e.g. revenue, healthcare expenditure)
Logistics and Partnerships	

† In this study we focus on challenges specific to surgical task shifting.

Table 3

Summary of participant concerns about SVO† involvement in surgical capacity building and task shifting as a capacity building method

SVO involvement in surgical capacity building:	
1	Host communities have the understanding that surgery volunteers are there to provide surgical services and will react negatively if a "mission" goes beyond providing surgical services.
2	Providers in host communities are sensitive to outsiders meddling in their local systems of healthcare delivery and any attempts at capacity building could result in distrust of and hostility towards volunteers.
3	Surgery volunteers are experts at providing surgical services to patients in need and should remain so. Capacity building should be left to other organizations with such expertise.
4	Even if SVOs were to get involved with capacity building, in their current structure, there is generally no administrative apparatus that is equipped to manage long-term capacity building programs.
5	With the current fragmented fashion in which SVOs operate, it is difficult for any particular organization to gather the requisite array of resources to make any meaningful impact on surgical capacity building.
6	Current allocations of SVO resources still heavily favor service-oriented projects. There is little focus on allocating resources to capacity building programs with sustainability as the long-term goal.
Task shifting as a capacity building method:	
1	Task shifting will very likely result in decreased quality of care and result in increased morbidity as the cost of increasing availability of surgical services.
2	Task shifting would mean a different level of care for low resource communities because it would circumvent the equivalent of board certification that is required for surgical practice in donor nations.
3	Task shifting would not be ideal as a way to improve the capacity for addressing plastic surgery related problems in low resource communities because of the high level of technical know-how plastic surgery entails.
4	Surgical know-how learned by non-surgeon providers would be a lucrative commodity that could be abused in "informal markets" because regulation would be difficult in low resource communities.

† Surgery Volunteer Organization