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Examination of Reflections from Nurse Anesthesia Trainee Volunteers in Honduras

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Examination of Reflections from Nurse Anesthesia Trainee Volunteers in Honduras

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Abstract

There is a lack of surgical and anesthesia services in low-income and middle-income countries (LMICs) which creates an increased burden of disease from otherwise surgically treatable conditions. Nurse anesthesia trainees (NATs) can serve to fill this lack of anesthesia services while also gaining real life experience that can enhance their training. Identifying common experiences and barriers among NATs that have volunteered on a surgical brigade is important to understand the benefits experienced by NATs and to increase volunteer surgical brigade programs among nurse anesthesia programs. A retrospective thematic analysis of 23 written reflections of NATs who participated in a one-week volunteer surgical brigade to Honduras, from 2012-2017, was done to identify common barriers and experiences of NATs volunteering in Honduras.

Utilizing content analysis, eight different themes were identified among NAT experiences with volunteering in Honduras. These themes include preparation, prior strengths and experiences, perspective of healthcare access, challenges, changed personal view, increased competence in anesthesia practice, positive experience, and advice to others. The results provide information that can serve as a guide for NAT participation in volunteer surgical brigades and development of NAT volunteer surgical brigades by nurse anesthesia programs.

Keywords: Certified Registered Nurse Anesthetist, Nurse Anesthesia Trainee, nurse anesthetist, volunteer, service learning

Introduction

Surgery is a vital element in the role of basic health care. Over the past two decades, the focus of global health care has been on individual diseases like human immunodeficiency virus (HIV), tuberculosis, and malaria. While this has decreased mortality and morbidity in relation to these diseases, there has been neglect in the development of access to surgical and anesthesia care in low-income and middle-income countries (LMIC).[1] Approximately 30% of the global burden of disease is represented by surgically treatable conditions while access to surgery that would treat these conditions remains unattainable for much of the world's population, an estimated 5 billion people.[1] This limited access to surgical and anesthesia care has devastating effects from loss of life, but also inhibits the potential economic growth of LMICs.[1]

Variables that have led to a severe lack of surgical services in LMICs include inadequate infrastructure, lack of training, and lack of education.[2] The problem is further compounded when qualified healthcare workers of LMICs are drawn to improved personal quality of life in developed countries causing a brain drain in the LMIC. Private volunteer organizations and nongovernmental organizations provide surgical services to fill the need in LMICs. Data is lacking on the true effectiveness of these organizations, but it is likely that the impact is quite significant towards populations that would otherwise not have access to surgical services.[2]

Certified registered nurse anesthetists (CRNAs) are anesthesia experts that provide anesthesia care to LMICs. This may be done through various organizations and through different roles such as direct clinical care on surgical brigades or through teaching assignments. The lack of anesthesia services globally identifies a potential knowledge gap of CRNAs in the possible roles they could play in this global health crises.

Nurse anesthesia trainees (NATs) are beginning to play a role in providing services that address the anesthesia provider deficiency in LMICs. In 2012, NorthShore University HealthSystem School of Nurse Anesthesia (NSUHSNA) NATs began to participate in volunteer surgical brigades. Between 2012 and 2017 over 30 NATs volunteered in a weeklong surgical brigade to Honduras. CRNAs and NATs have a practical set of skills and knowledge that is desperately needed to support surgical access in LMICs. Analysis of reflections of NATs that have volunteered in Honduras allows for identification of common experiences or barriers.

There are limited studies to date describing CRNAs and NATs experiences with volunteering overseas, as well as anesthesia services and volunteering. Pieczynski et al. sought to identify common experiences among anesthesiologists and residents by analyzing field reports of anesthesia volunteers in LMICs.[3] Themes identified were that the volunteer experience was rewarding, volunteering had a positive impact, and volunteers experience challenges.[3] This study did not include CRNAs or NATs. The purpose of this retrospective thematic analysis of post-brigade reflections is to identify common barriers and experiences of NATs volunteering in Honduras.

The theoretical framework for this project is a service learning theory. Service learning, developed in the late 1960s as an educational model, sought to use community service in conjunction with education to create training which is beneficial for the trainee and benefits communities.[4,5] Service learning provides a real-world experience for the trainee, often having added benefits for the trainee while meeting a need of a community at the same time.[4]

Important components of service learning are preparation for service, training or experience in a community service setting, and proper reflection on the trainee's experiences.[6] There has been an increase in service learning in an international capacity with the service being

provided in developing countries.[4] Service learning in developing countries seeks to benefit those that are being served, but also has positive benefits on the trainee. Trainees that have experience through service learning have increased cultural understanding, improved clinical skills, and increased teamwork skills.[4]

A model of trainee service learning focuses on sustainable training of host healthcare practitioners while also including volunteers that are trainees themselves.[6] Service learning instills professionalism and creates anesthesia providers that will continue to be involved in volunteering into their career.[6] A service learning model provides the proper framework for this project by examining data from NAT post-brigade reflections after serving in LMICs. The commonalities identified may provide further information on the benefits of volunteering for NATs or find ways to improve the experience of NAT volunteering, which may promote future participation or development of NAT surgical brigade trips in nurse anesthesia programs.

The need of anesthesia volunteers in LMICs has been identified, but careful matching of an organization and a volunteer is vital to success. Reasons for volunteering requires an anesthesia provider to assess their own motivation and the organization, in order to make a successful match. A volunteer that is a poor fit may end up being ineffective or having a negative impact.[7] Research that identifies common experiences or barriers of nurse anesthetists who volunteer may help further knowledge of how organizations can aid volunteers and how volunteers can identify opportunities that are proper fits.

Limited studies, to date, focus on CRNAs volunteering in LMICs. Current literature has focused more on surgical service volunteers. Among this population, volunteering in medical missions has led to increased clinical skills, cultural skills, and effectiveness in working with

limited resources.[8] The experience of working in a setting outside of an American hospital often develops critical thinking skills that cannot be replicated in conventional training.[9]

Common experiences of CRNAs and NATs who have participated in volunteering abroad have not been identified. These experiences may be similar to the medically trained anesthesia providers experiences, but NATs have different backgrounds and training. Identification of common barriers or experiences among NATs that have volunteered in medical missions may help organizations work with NATs by understanding how NATs can be incorporated into a comprehensive surgical brigade. These commonalities may also aid in teaching NATs about volunteering and may help in providing direction to NATs that are interested in volunteering. This study aims to identify these common barriers and experiences of NATs that have volunteered to Honduras, an LMIC.

Methods

This study utilized a retrospective study design. A thematic analysis of 23 written reflections of NATs who participated in a one-week volunteer surgical brigade to Honduras, from 2012-2017. The volunteer surgical brigade was not part of the formal curriculum. The reflections are based on responses of the NATs to eight prompts (See Appendix A) that were provided by school faculty, Dr. Bernadette Roche, the faculty sponsor (FS) of the study. NATs were asked to complete the reflections two weeks after returning from the week-long surgical brigade trip. During the brigade, NATs administered anesthesia during procedures at Holy Family Surgery Center. The NATs who served on a surgical brigade were senior trainees and had been in clinical residency for more than 6 months.

Dr. Roche traveled with the NATs to Honduras to serve as a mentor and educator during the brigades. The reflection prompts were developed after two brigades had been completed with

six students. The original purposes of the prompts were to assess educational, professional, and personal experiences related to the surgical brigade. The reflections were shared with the principal investigator (PI) in a de-identified manner.

NVivo 12 qualitative analysis software was used to identify common themes among the reflections of the NATs. The written reflections were entered into NVivo for thematic analysis. A coding scheme was developed by the PI. The data was coded into nodes solely by the PI with multiple readings of the reflections. This was done until no further nodes were identified and thematic saturation occurred. Common themes were then identified. The coded data was then critically reviewed by the DNP project committee for consensus building and confirmation of the themes that have been identified through the coding and concurrent analysis to improve the reliability of the coding. Common themes are reported in results. Direct quotes from reflections are used to show examples of the themes found. This study was approved by the DePaul University Institutional Review Board (IRB).

Results

Utilizing content analysis, eight different themes were identified among NAT experiences with volunteering in Honduras. These themes include preparation, prior strengths and experiences, perspective of healthcare access, challenges, changed personal view, increased competence in anesthesia practice, positive experience, and advice to others.

Preparation

In preparation for the surgical brigade NATs primarily focused on reviewing regional anesthesia and machine checkouts of older anesthesia machines. These were topics that they may have not had a large amount of experience with previously. NATs also talked to previous volunteers to gain perspective and set expectations of what the surgical brigade may look like.

> "The major thing I did in preparation was to review various peripheral nerve blockade techniques and expected anatomical structures, as I was pretty sure that I would be doing more blocks in this one week than I had previously done in my entire career up to this point."

> "In the months leading up to the brigade, I spoke with several former … students that participated in past brigades regarding what to expect at the surgery center."

Prior Strengths and Experiences

NATs identified their clinical experience, a flexible attitude, and compassion as strengths brought on the trip. Previous experience in missions was also identified as a benefit because it aided in having the correct expectations for volunteering in an LMIC.

> "The strengths I personally brought on this mission include my 18 months of clinical experience as a SRNA, my previous seven years of ICU experience, my flexibility and adaptability from experience working as an agency RN at numerous hospitals, and my passion of caring for others."

> "Having experience travelling to third world countries and seeing what kind of resources were available at those past trips definitely helped me to adjust my expectations for this surgical brigade. I think my past experience helped me to not be distracted by the cold showers, strange bugs/creatures, and different food and allowed me to focus on the work."

> "When I was in my nursing undergrad, I traveled … on an 18-day brigade. There, I provided essentially primary care, including assessments, diagnosis and prescription to children in the village... I think this brought me comfort because I knew what to expect, to some extent, when traveling to another country without my usual accommodations. I had also been exposed to some of the "make it work" type flexibility of healthcare in 3rd world countries."

> "I also feel that my past experience with medical missions helped prepare me for working in a place where English was not prevalent."

Perspective of Healthcare Access

NAT volunteers had firsthand experience in viewing healthcare access in a LMIC. Most NAT volunteers stated that their perspective was changed on access to healthcare in third world countries. The only volunteers that did not have a change stated that this was because they had already had experience in third world countries and knew how poor access to healthcare could

be. This change in perspective was likely a gain in knowledge or a new understanding of what access to healthcare is like in third world countries. Another aspect of the volunteer experience was a new appreciation for healthcare access that is experienced in the United States.

> "Working in an underprivileged country I quickly recognized how much we take for granted in the U.S, specifically pertaining to medical care that is easily accessible and more advanced compared to other countries. Several patients I encountered had to travel several hours to get to the surgery center. One gentleman walked two hours from the mountains in order to take a bus another two hours to have hand surgery. This made me realize how fortunate we are to have a hospital in close proximity as well as ease of transportation. Another patient that made an impact on me had traveled with two volunteers from Belize by boat, rented a car, spent the night in Tegucigalpa, drove another hour to the surgery center to undergo a 30-minute surgery to have pins removed from his arm that were causing him pain."

> "Prior to my experience at HFSC, I was under the assumption that those living in third world countries had access to healthcare and local hospitals, albeit not the most advanced technology. However, after caring for patients who had fractures that were months old, gangrene that was well on its way to becoming sepsis, and deformities that were once fractures but had long since healed abnormally, I quickly realized that access to healthcare is a luxury and most definitely not a right for many third world citizens. After discussing the condition of the hospital in Tegucigalpa with other practitioners and various Hondurans, I was astounded by the lack of organization and technology with which their facility was described. It was heartbreaking to realize the reality of the conditions in which these Hondurans were cared for in even the best of facilities offered to them."

Challenges

Volunteering in Honduras did pose challenges for the NAT volunteers. The most common challenge was dealing with a language barrier. Other challenges identified were working with unfamiliar equipment and operating room environment, and working long hours. Challenges to the NAT were often identified as learning and growth opportunities. Working long hours was often recognized as a necessity of the trip in making maximal impact during the surgical brigade.

> "The biggest challenges encountered during the brigade included the language barrier, the long hours the first few days of the brigade, and adjusting to new equipment. It was helpful to have interpreters, but when they weren't available it was frustrating not to be

> able to communicate with my patients. I do plan to start learning some basic Spanish after graduation and boards, as there tends to be Spanish-speaking populations encountered weekly in the U.S., and also in hopes of returning to Honduras in the future for additional brigades. The hours the first few nights were long, but the feeling of helping others in need was rewarding enough to make it worth it... The equipment challenge was quickly and easily overcome."
>
> "Reflecting on these challenges, it taught me to be flexible and appreciate what I do have versus focusing on always wanting more."

Changed Personal View

NAT volunteers often experienced a personal change in their own views in regards to personal life and their views of anesthesia practice. NAT volunteers expressed an increased desire to volunteer or give more in a charitable fashion.

> "After my experience in Honduras I will continue to look for opportunities to help those less fortunate than myself, whether through volunteering my time or eventually sponsoring a child abroad. My experience with September's brigade also opened my eyes to the great need for anesthesia providers across similar medical missions. I look forward to taking the skills that the … anesthesia program has and will provide me with over the next year and continue to help those in need."

NATs also identified an increased awareness of waste in current anesthesia practice. NAT volunteers were able to administer anesthesia in a new setting and with less resources and technology then they were used to. This led to a changed view on understanding that anesthesia can be safely administered in different ways and without all the extras that are often seen in a modern US operating room.

> "I definitely appreciate what we have a heck of a lot more. However, it also makes me more conscious of how much we waste. I mean, I provided safe and efficient anesthesia without all the excess stuff some sites consider standard. I'm kind of torn on what I think. I was surprised to hear about all the corruption and how supplies and meds are "available" to those people that can pay cash, etc. While I believe our healthcare system is superior, I also think we have so much to learn and change… and oddly, we could learn from 3rd world healthcare."
>
> "I learned to utilize what was available to me, minimize waste and maximize resources. I see how many extra supplies are used in the U.S. that is not necessarily needed to deliver

> safe and effective anesthesia. I am glad I could experience anesthesia in this way and will continue to incorporate this in my practice."

Increased Competence in Anesthesia Practice

NAT volunteers expressed increased knowledge and skills in regional anesthesia. They were provided hands on experience that increased their skills with regional anesthesia and management of cases that involve regional anesthesia.

> "I am proud to say that I am much more confident in my regional skills and incorporate that into my current practice."

> "I also appreciated seeing how an anesthetic done after a working PNB often reduces your anesthetic requirement significantly. I hope to one day work in a setting that allows me to incorporate regional anesthesia, and to that end this I found this experience invaluable."

> "During the surgical brigade I was able to provide a lot of regional anesthesia. Learning blocks for orthopedic procedures was amazing. It was nice to see both the nerve stimulator approach and the ultrasound guided approach. I feel this is something I will definitely incorporate into my professional life in the United States."

NAT volunteers also expressed an overall increase in confidence and competence in their personal anesthesia practice.

> "As a result of the surgical brigade I feel like my confidence and competence in providing anesthesia has grown a lot. I feel like this experience forced me out of my comfort zone, and as a result it made me grow professionally in ways I never would have otherwise."

> "I feel as though I am more flexible with my anesthetic practice. For example, I can assess a patient, decide on a plan, and be able to quickly convert to a different plan when necessary because of the fact that I spent those days in the OR adjusting my anesthetic to fit the needs of not only the patient, but also the surgeon, the supply (using isoflurane for cases because it is cheaper than sevo, re-using masks, airways, circuits, etc.), and the integrity of the equipment (end-tidal, EKG, pulse-ox, table controls, etc.)."

Positive Experience and Advice to Others

Overwhelmingly NAT volunteers had a positive experience with volunteering. None of the reflections expressed an overall negative experience. NATs often stated how the trip was

"rewarding", "gratifying", and "life changing." When asked about advice to future volunteers, NATs stated often to keep an "open mind".

> "Upon returning home I see more clearly just how fortunate I am. One piece of advice I would give a student preparing for a mission trip would be to keep an open mind, take in the environment, and immerse themselves in the experience. This was a really amazing experience and I am so grateful to have had the opportunity to participate in the brigade."

Discussion

The purpose of this retrospective thematic analysis study of post-experience reflections was to identify similar barriers or common experiences of NATs with experience volunteering in Honduras. NATs with experience volunteering in Honduras experienced personal growth and development and increased competency in anesthesia practice. NATs claimed to have an increase in their technical skills through their experiences with regional anesthesia and increased confidence in their anesthesia practice overall. The volunteer experience offered a new environment and new opportunities that NATs felt were helpful in gaining confidence, problem solving skills, and adaptability. These findings are similar to those seen in other healthcare providers and their experiences with volunteering in medical missions.[8,9]

NATs expressed a new understanding of the lack of access to healthcare in LMICs, while also experiencing an appreciation for the access to healthcare experienced in the US. The experience of directly seeing the lack of access to healthcare to the patients the NATs served cemented this reality in a tangible way that is often difficult to come to from afar. This new knowledge can help aid these future CRNAs in helping to either returning to serve or promote volunteering in order to fill the void of global surgical services.

NATs experience with volunteering was rewarding and gratifying. Not only did the NATs experience reward from gaining anesthesia skills and competence, but the volunteer

experience often left NATs with a renewed outlook on their personal lives. The trip provided an outlet to reflect on what they are truly thankful for and fortunate to have in their lives.

Volunteering is challenging, primarily with language barriers, new equipment and environment, and long work hours. These results corroborate with previous studies in stating that volunteering in LMICs is challenging.[3] These findings are important in making sure future volunteers have a proper perspective of the expectations of a volunteer surgical brigade. If a volunteer goes with inadequate expectations of potential challenges, they may be taken off guard and have a negative volunteer experience. This is emphasized by NATs recommending having an 'open mind' going into and during a trip.

NATs volunteering in Honduras experienced positive benefits while also providing valuable anesthesia services to a community in need. Other nurse anesthesia programs can implement similar volunteer surgical brigade experiences by increasing involvement of NAT volunteers and providing education on the positive benefits of volunteerism in LMICs.

Limitations

There are several limitations to this study. All analyzed reflections were from NATs enrolled in one nurse anesthesia education program, which may limit the generalizability of the study to other NATs. The surgical brigades were limited to one surgical center that was predominantly staffed by US volunteers. The NATs also traveled with and were supervised by school faculty. This may have reduced NAT stress, decreased transition time, and increased the comfort level of NATs working with an unfamiliar OR environment and limited resources.

NATs that chose to volunteer in LMICs may already have an increased desire to volunteer or certain values for volunteering. This may contribute to the positive experiences reported by the NATs. All post-experience reflections were completed within the two-week

period after returning from the surgical brigade. This is beneficial because the experience is still fresh, but answers may change over time as the experience fades and the NAT returns to normal life.

Recommendations

This qualitative research study offers opportunity for additional research. Expansion of the study to include more participants in different nurse anesthesia education programs may provide different experiences or challenges identified by NATs. Since volunteering is beneficial to NATs, further research is warranted on how nurse anesthesia programs may offer volunteer surgical brigade experiences to NATs within the time constraints of their program of study. Nurse anesthesia programs that provide a volunteer surgical brigade experience could be surveyed for potential barriers or successes to implementing a NAT volunteer surgical brigade program. Nurse anesthesia programs should also pursue additional sources of funding to cover NAT expenses and increase NAT participation.

The Council of Accreditation of Nurse Anesthesia Educational Programs (COA) is the accrediting agency in the US for nurse anesthesia programs.[10] The COA does not recognize NAT experiences in LMICs as counting towards mandatory clinical experiences. Further research by the COA is warranted to support the approval or disapproval of supervised clinical experiences in LMICs. A change in COA requirements may support the development of more NAT volunteer surgical brigade programs by removing a perceived barrier of lost clinical time.

NATs stated that they had an increased desire to volunteer in the future. Follow up studies are needed to determine if volunteering as a NAT increases the volunteer activity of NATs after they became CRNAs. NATs also stated a desire to increase their financial support of surgical brigades. Follow up studies can assess if this increase actually does happen. CRNAs that

are not able to volunteer could also be encouraged to aid in funding NATs participating in surgical brigades. This creates more potential volunteering opportunities for NATs without excessive financial obligations, while also creating giving opportunities for CRNAs.

Conclusion

There is a severe lack of surgical and anesthesia services to LMICs. CRNAs and NATs can assist with the provision of anesthesia services through multiple routes, especially by serving directly on surgical brigades. This study shows that NATs that have volunteered in Honduras have an increased knowledge of the limited access to healthcare that exists in LMICs, experience personal growth, and report increased competency in anesthesia skills and knowledge content. Volunteer NATs experienced common challenges consisting of dealing with a language barrier and working with unfamiliar equipment and operating room environments. These challenges are often identified as personal learning and growth opportunities, but also aid in recognizing areas where volunteer organizations can promote NATs involvement on surgical brigades. The positive benefits experienced by NAT volunteerism during their training should promote further research and development of similar surgical volunteer brigades for NATs to participate in.

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Appendix A: Post-Experience Prompts Provided to NAT Volunteers

APPENDIX G: Honduras Surgical Brigade: Self-Assessment and Critical Reflection

Using a journal format, please answer the following questions. Feel free to add other comments or address any concerns you had during the brigade. There is no word limit but a critical reflection of your personal experience is expected. Submission date is the third Monday after completion of the brigade.

1. How did you prepare for your assignment at Holy Family Surgery Center?
2. What strengths and experiences (personal and professional) did you bring with you?
3. How did the experience change your opinions and perspectives on access to health care in third world countries?
4. What were the three greatest challenges you encountered during the brigade?
5. Discuss how your knowledge of anesthesia and healthcare has evolved and changed as a consequence of the brigade experience?
6. What aspects of your personal or professional life did you find you viewed differently upon returning home?
7. Did you learn, do, or observe anything during the brigade that you will incorporate into your personal or professional life back in the U.S.?
8. What is one piece of advice you would give to a student preparing for a medical brigade?