Trop Doct OnlineFirst, published on August 30, 2016 as doi:10.1177/0049475516665999

Tropical Doctor

Article

Tropical Doctor
0(0) 1–5

DOI: 10.1177/0049475516665999
tdo.sagepub.com

Training responsibly to improve global surgical and anaesthesia capacity through institutional health partnerships: a case study

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Abstract

Background: Urgent investment in human resources for surgical and anaesthesia care is needed globally. Responsible training and education is required to ensure healthcare providers are confident and skilled in the delivery of this care in both the rural and the urban setting. The Tropical Health and Education Trust (THET), a UK-based specialist global health organisation, is working with health training institutions, health professionals, Ministries of Health and Health Partnerships or 'links' between healthcare institutions in the UK and low- or middle-income country (LMIC) counterparts. These institutions may be hospitals, professional associations or universities whose primary focus is delivery of health services or the training and education of health workers. Since 2011, THET has been delivering the Health Partnership Scheme (HPS), a UK government-funded programme that provides grants and guidance to health partnerships and promotes the voluntary engagement of UK health professionals overseas. To date, the £30 million Scheme has supported peer-to-peer collaborations involving more than 200 UK and overseas hospitals, universities and professional associations across 25 countries in Africa, Asia and the Middle East.

Case description: In this paper, we focus on four partnerships that are undertaking training initiatives focused on building capacity for surgery and anaesthesia. In order to do so, we discuss their role as a responsible and effective approach to harnessing the expertise available in the UK in order to increase surgical and anaesthesia capacity in LMICs. Specifically, how well they: (1) respond to locally identified needs; (2) are appropriate to the local context and are of high quality; and (3) have an overarching goal of making a sustainable contribution to the development of the health workforce through education and training.

Discussion: The HPS has now supported 24 training initiatives focused on building capacity for surgery and anaesthesia in 16 countries across sub-Saharan Africa, Asia and the Middle East. THET argues that these initiatives are both responsible and effective. The four partnerships featured in this paper have demonstrated not only their effectiveness in increasing health worker skills and knowledge, but have done so across a variety of surgical and anaesthesia disciplines and within different contexts. This wide reach and applicability of partnership initiatives adds even greater value to their use as responsible training interventions. One challenge that has faced these partnerships has been the capture of improvements to patient outcomes as a result of improved practice. To counteract the problems of data collection, partnerships are collecting anecdotal evidence of improvements at the patient outcome level.

Conclusion: The interventions supported by THET have been able to demonstrate success in improving health worker skills and knowledge, and albeit to a lesser extent, in improving patient outcomes. The implementing partners are achieving these successes by training responsibly: responding to locally identified need, implementing projects that are appropriate to the local context and are of high quality, and establishing mechanisms that ensure self-sufficiency of the health worker training and education that is delivered. Greater investment in responsible training initiatives such as these are required to address the significant lack of access to appropriate and safe surgical and anaesthesia interventions when needed and the growing burden of disease.

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Keywords
Human resources for health, health training institutions, surgery and anaesthesia care

Introduction

Development of safe, essential, surgical and anaesthesia care worldwide has to date been typically under-prioritised and under-funded. Often considered too complex and too expensive to address, surgery is now gaining much needed recognition for the key role it plays in tackling a broad array of conditions, including obstructed labour, appendicitis, diabetes, cancer, cataracts, road traffic injuries and injuries due to burns and falls. This recognition has been underscored by research presented by The Lancet Commission on Global Surgery 2015, which suggests that the number of people who are unable to access 'safe, affordable surgical and anaesthesia care when needed',[1] stands at a staggering 5 billion—more than twice as high as previously thought. Unsurprisingly, it is people in low- and middle-income countries (LMICs)—particularly the rural populations—that disproportionately experience this lack of access. The major contributing factors include limited surgical and anaesthesia capacity, both in terms of appropriate skills as well as of numbers of health workers trained, and an uneven distribution of the limited human resources that do exist.

As part of the way forward, the Lancet Commission has identified that responsible training and education is required to ensure healthcare providers are confident and skilled in the delivery of surgical care in both the rural and the urban setting. The Tropical Health and Education Trust (THET) is already working to deliver this. Specifically, it supports a range of interventions that: (1) respond to locally identified needs; (2) are appropriate to the local context and are of high quality; and (3) have an overarching goal of making a sustainable contribution to the development of the health workforce through education and training. These interventions are designed to provide much needed capacity development for in-service health professionals. The DFID-funded Health Partnership Scheme (HPS) is a primary example of this work.

Responsible training initiatives

THET has been working to develop and support institutional health partnerships or 'links' between the UK and LMIC counterparts for over 25 years. Since 2011, the organisation has been the managing agent for the HPS, a programme that provides grants and guidance to health partnerships and promotes the voluntary engagement of UK health professionals overseas. To date, the Scheme has supported peer-to-peer collaborations involving more than 200 UK and overseas hospitals, universities and professional associations across 25 countries in Africa, Asia and the Middle East. Almost 1500 employees from the National Health Service (NHS) have volunteered their time and expertise to provide nearly 40,000 training course places or other educational opportunities for health workers in LMICs, including 5000 nurses, 3000 midwives, 3000 community and traditional health workers, 3000 doctors, 3000 clinical officers and medical assistants, and 8000 medical and healthcare students. While health partnerships manifest in different ways, they share some common characteristics and strengths. It is the development of a mutual understanding of the multiple benefits to working together[2] that marks the beginning of a health partnership and contributes to the sustainability of what it achieves.

Responsibly responding to locally identified needs

In order best to utilize the UK partner's skills, knowledge and resources to meet the needs of the LMIC institution, the partners commence collaborative working by conducting an extensive needs assessment. This includes visits to the LMIC health institution and its facilities, and interviews with health workers, patients and other key stakeholders. This process allows both partners to be fully informed of the training requirements, as well as patient needs, and to ensure that any training delivered is tightly tailored to context and aligned with the priorities of the LMIC institution. For example, the two-year Association of Anaesthetists of Great Britain and Ireland (AAGBI) – Ugandan Society of Anaesthesia (USA) project (Table 1), was conceived following semi-structured interviews with frontline staff, among other methods. These interviews highlighted that, despite high maternal mortality rates, there was no recognised course for obstetric anaesthesia as well as no formal training in recognition and immediate management of critically ill mothers in the country, and that, crucially, staff wished to receive such training. The partners used this information to develop and deliver SAFE Obstetric Anaesthesia courses, made possible by an HPS grant.

Locally appropriate and high quality project implementation

The projects are designed collaboratively in order to ensure that the training content and method of delivery is appropriate to the local context. Given the

Table 1. Surgical and anaesthesia projects supported by THET and funded under the HPS (not exhaustive).

Project	Lead UK Partner	Lead LMIC Partner	Date
SAFE Obstetric Anaesthesia Courses for whole of the Ugandan Anaesthetic Workforce	Association of Anaesthetists of Great Britain and Ireland (AAGBI)	Ugandan Society of Anaesthesia (USA)	2012–2014
Multilevel Training in Trauma and Musculoskeletal Impairment Care in East Central and Southern Africa	Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Science (NDORMS), University of Oxford	College of Surgeons of East, Central and Southern Africa (COSECSA-ASEA)	2012–2016
Reducing mortality and morbidity from traumatic injury in central Kenya through education, system improvement and prevention	South Devon Healthcare NHS Foundation Trust	Nanyuki District Hospital, Kenya	2012–2015
Multilevel Training for Healthcare Workers in Surgical and Theatre Nursing Skills in East, Central and Southern Africa to Achieve Better Outcomes following Emergency Surgery	Association of Surgeons of Great Britain and Ireland (ASGBI)	College of Surgeons of East, Central and Southern Africa (COSECSA)	2012–2015

low-resource environments in which partners work, for example, many projects are designed without the requirement for sophisticated equipment. The method of delivery, which ranges between projects from practical courses to one-to-one mentoring to classroom-based teaching, is also informed by the workplace environment. An important example is the time constraints of the trainees; partnerships utilise a delivery method that works best around these in order not to interrupt essential service delivery. Other factors that inform the design of projects include the levels of literacy of the health workers as well as any language barriers and whether the content of courses is culturally appropriate. The latter consideration is very important; if health workers do not feel confident delivering a particular skill owing to social stigma associated with doing so, for example, they would be very unlikely to use their new skills in practice.

The training is also delivered in-country and, where possible, close to where the trainees work. They thus learn and practise new skills, as well as become familiar with managing resources, in a location similar to where they conduct their clinical practice. Conducting training courses in rural areas has also been shown to help local health worker recruitment and retention,[3,4] In Uganda, for example, most physician anaesthetists work in two major teaching hospitals in Kampala and Mbarara, and thus anaesthesia care in rural areas is mainly delivered by non-physician anaesthetic officers. The AAGBI–USA SAFE courses have helped the physicians to understand the challenges faced by their non-physician colleagues and to advocate on their behalf.

Rural components to the training and exposure to its rewards are also delivered where relevant to the trainees. This has been shown to increase health worker recruitment and retention in rural areas and has been found by the AAGBI–USA project to allow urban health workers to better understand the great difficulties of delivering safe practice in rural areas.

In terms of ensuring high quality health worker training, partners utilise the expertise of UK clinicians, who have relevant experience and training. Short- and long-term volunteers are thus selected to deliver the training based on their proven clinical competencies as demonstrated through their work within the UK health system, and often on their experience working in LMICs. Furthermore, partners ensure quality training through delivering course content that is internationally recognised and/or endorsed. An example is the training delivered by the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Science (NDORMS), University of Oxford and the College of Surgeons of East, Central and Southern Africa (COSECSA-ASEA) project (Table 1). A major element has been the delivery of Primary Trauma Care (PTC) courses, which were developed to teach the essentials of emergency trauma care and prevention in a way that is appropriate for LMICs, and which had been delivered effectively by the (PTC) Foundation in around 60 countries prior to the project. A further example is the training delivered by the South Devon Healthcare NHS Foundation Trust–Nanyuki District Hospital partnership. Their most recent project (Table 1) has incorporated existing best-practice guidance where appropriate, including WHO Guidelines for

Essential Trauma Care and Guidelines for Trauma Quality Improvement Programmes.

Sustainable contributions

THET recognises that high quality and appropriate training and education should not only be delivered, but also sustained. It is therefore crucial that health workers are provided with the skills to lead on the training and administration of courses in future, and that ownership for these courses is embedded into local structures effectively during project implementation. Partnerships incorporate mechanisms from the beginning to ensure that this is the case; these range from Training the Trainers (TTT) courses whereby local trainees increasingly perform a lead role in delivering the courses, to embedding the courses in local training curricula, to identifying local champions who have the ability and commitment to ensure that courses are implemented in future. There is evidence to show that these mechanisms result in self-sustaining training; this includes that anaesthetic officers trained by AAGBI–USA are initiating their own continuing medical education (CME) sessions, through which they are cascading the skills that they have learnt to their colleagues at their local hospitals.

Results: increased surgical capacity

The partnerships have been able to demonstrate positive project outcomes at the health worker as well as, albeit to a lesser extent, the patient level. The ASGBI-COSECSA project (Table 1), for example, resulted in 90% of the trainee surgeons, medical officers and non-physician clinicians demonstrating increased levels of knowledge and skills in performing surgeries 4–6 months after their training. Improvements in the type and outcome of operations performed as a result of training were found to be considerable or very considerable by all trainees, suggesting improvements to outcomes at the patient level too.

During the AAGBI–USA project, the anaesthetic officers that were trained undertook before and after multiple choice question (MCQ) knowledge tests. The tests demonstrated that, among other achievements, 42% had improved their cardiopulmonary skills and 47% had improved their skills in the management of eclamptic seizures. A follow-up visit that looked at the care of mothers and the newborn by the anaesthetists having attended the SAFE course showed that over 300 cases were identified where the clinical outcome had been improved.

The NDORMS–COSECSA project has trained more than 1800 health workers of different cadres in PTC to date. Preliminary survey data of course participants at 6 months after attending training suggest that trainees are retaining trauma management knowledge (with an average MCQ score of 83%), that they have clinical confidence (with an average matrix score of 88%) and that 92% of the trainees have noted a change in their personal management of trauma. Further to the PTC training, 36 surgeons spent between 1 and 6 months on paediatric orthopaedic clinical fellowships, through which they performed over 1100 operations. Their trainers assessed that 91% of the trainees gained an appropriate or above average level of clinical knowledge. Following their placements, all of the trainees reported that their management of children's musculoskeletal impairment had significantly changed as a result of their placement.

The South Devon–Nanyuki partnership, which has trained a multidisciplinary trauma management team at Nanyuki District Hospital in Kenya, has also had success in demonstrating improvements to health worker competence and confidence. Trainee confidence tests that use a scoring system up to a maximum of 5 points, for example, have shown that the average confidence of trainees in managing acutely unwell patients has increased from 2.3/5 to 4.6/5 on average, and that confidence in asking for senior help has increased from 3.5/5 to 4.7/5, following training. The partners have worked to demonstrate reductions in mortality and morbidity; however, challenges in data collection have thus far limited the conclusions that they could draw from the data.

In all, these responsible training initiatives are each managing to demonstrate their ability to improve surgical capacity in LMICs in terms of health worker knowledge and skills. While it has been more challenging to gather data on the impact of these projects at the patient outcome level, primarily owing to challenges of data collection that are commonplace in the LMIC health institution context, it is clear that partners are managing to begin the task of collecting anecdotal evidence around improvements to their care.

Conclusion

Despite the significant lack of access to appropriate and safe surgical and anaesthesia interventions when needed and a growing burden of disease, surgery has for decades been a low priority on the global health agenda. What is now required is greater investment in global surgery and anaesthesia. The four cases presented in this paper demonstrate success in improving health worker skills and knowledge and, albeit to a lesser extent, in improving patient outcomes. The implementing partners are achieving these successes by training responsibly: responding to locally identified need,

implementing projects that are appropriate to the local context and are of high quality, and establishing mechanisms that ensure self-sufficiency of the health worker training and education that is delivered.

In 2015, THET has continued to award grants, funded under the HPS and in partnership with Johnson & Johnson under the Strengthening Surgical Capacity Scheme, to health partnerships that are implementing surgical capacity development projects. These include: Addenbrooke's Abroad, Cambridge University Hospitals NHS Foundation Trust and Yangon General Hospital, Myanmar, working to enhance trauma patient outcomes in Myanmar; University of Oxford and CURE Ethiopia Children's Hospital, training health workers from Ethiopia and other sub-Saharan African countries to treat clubfoot; and Cardiff University and the University of Namibia, delivering anaesthesia training and development to graduated medical students and medical officers.

Acknowledgements

The following contributed by offering comments and suggestions: Kerri Jones, Matthew Halkes, South Devon Healthcare NHS Foundation Trust, UK; Isabeau Walker, Association of Anaesthetists of Great Britain and Ireland, UK; Christopher Lavy, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, UK; Robert Lane, Association of Surgeons of Great Britain and Ireland, UK; and Graeme Chisholm, Tropical Health and Education Trust, UK.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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