World J Surg (2022) 46:473–475
https://doi.org/10.1007/s00268-021-06396-7

EDITORIAL PERSPECTIVE

# We Asked the Experts: The Tropical Surgeon: Everywhere in Chains But Not Imprisoned

**Akaninyene Eseme Ubom[1,2] · Oluwaseun Oludotun Sowemimo[2,3] · Nyawira Wahome Ng'ayu[2,4]**

Accepted: 13 November 2021 / Published online: 7 January 2022


Surgical practice in the tropics very much reminds one of the famous quote attributed to Jean-Jacques Rousseau: *"Man is born free, but he is everywhere in chains"*. The numerous and onerous challenges of tropical surgical practice are the metaphorical chains that bog down the tropical surgeon.

Poor government funding of health care and very low health insurance coverage in the tropics make surgery materials rarely available in operating theatres, necessitating patients having to buy these materials out-of-pocket (OOP), even in emergencies. The majority of patients cannot afford surgery materials OOP, owing to widespread poverty. This prolongs decision-to-incision time, consequently increasing perioperative morbidity and mortality.

Most hospitals depend on fuel-powered generators for electricity, due to epileptic power supply in the tropics. Cost of fuel is high, and most underfunded public hospitals cannot afford this expense sustainably. It is common for patients' relatives to provide fuel to power generators for surgeries, especially in emergencies [1]. Surgeries are performed using lamps, phone torchlights or even sunlight. Even when power is available, operating theatres are poorly lit and lack basic supplies like running water, oxygen, functional anaesthesia machines, and even pulse oximeters [1]. It is common for surgeries to be postponed or cancelled because there is no oxygen or power supply in the operating theatre.

Unavailability of blood/blood products remains a significant cause of delayed decision-to-operating room time in the tropics. The bulk of blood donations are by replacement donors, who are usually patients' relatives and friends. A patient may not have blood if his/her relative/friend has not donated, even for emergency procedures. These relatives often cannot afford the cross-match test, or are unable to donate due to blood incompatibility, or ineligibility, for various reasons.

Poor staffing is a perennial problem, resulting in surgical residents working for prolonged hours. Cumulative work hours of up to 123 h/week have been reported [2]. It is normal to have one house officer, one surgery registrar, and one specialist registrar on-call every day of the week in many surgical units in the tropics. These long work hours correlate with high rates of burnout, reduced quality of life, morbidity, and, in extreme cases, mortality, amongst surgical residents [2].

✉ Akaninyene Eseme Ubom
akaninyeneubom@oauthc.com

[1] Department of Obstetrics, Gynaecology, and Perinatology, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria

[2] World Association of Trainees in Obstetrics and Gynaecology (WATOG), Paris, France

[3] Bradford Teaching Hospitals NHS Foundation Trust, West Yorkshire, England

[4] University of Nairobi, Nairobi, Kenya

Even fewer than surgeons in the tropics, are anaesthetists. The anaesthetist-to-patient ratio is as low as 1:300,000, compared to 1;10,000 in developed countries [3]. Most of the available anaesthetists are employed in tertiary hospitals, leaving surgeons in secondary and private hospitals without much anaesthetist support [3]. This contributes to third-phase delay in the provision of surgical care in the tropics, whilst "waiting for the anaesthetist", who may be unavailable. Surgeon-administered spinal anaesthesia and ketamine for emergency operations are commonplace, with an assistant monitoring the patient with a stethoscope attached to the patient's chest and manually checking the vital signs at intervals, owing to non-functional or unavailable monitors [1, 3]. The surgeon in the tropics improvises many unavailable surgery equipment pieces, from using face towels as abdominal mops, to Foley's catheter as chest tube.

Few functional operating theatres complement staff shortages in the tropics. In many hospitals, it is normal to find only one functional operating theatre, where all surgical cases, irrespective of specialty, are performed. Emergency surgeries are thus delayed, and elective procedures, often postponed or cancelled. These factors contribute significantly to high-case fatality rates (even from common, treatable surgical conditions) and reduced operative volumes in the tropics. Only 6% of the estimated 313 million surgical procedures undertaken globally each year occur in the tropics [4].

Aside from the challenges of practice, tropical surgeons lack motivation to undertake research due to a combination of lack of resources, poor funding, and other systemic factors. These factors force the tropical surgeon to do the researches that he can do, and not necessarily the researches that he should do. The outputs are mostly low-impact research works, which are at best published in local journals that are constrained by poor funding/subscription, infrequent publishing, long review times, and even longer times between acceptance and publication. Overtime, the tropical surgeon preferentially drops the pen for the scalpel.

Despite these challenges, the tropical surgeon has refused to be bogged down and has continued pushing the frontiers of surgical practice across different surgical specialties. Tropical surgeons are performing open heart surgeries, renal transplantations, minimal access general surgery, gynaecology and oncology operations, separation of conjoined twins, many major and complex hepatic, pancreatic, paediatric, plastic, and neurosurgeries, amongst several others, even with improvisations and local adaptations.

Outside of the theatre, many tropical surgeons have distinguished themselves as heads and members of different local, regional, and international health and surgical bodies/organisations, advancing the development of surgical care in their areas of influence. In the area of research, the recently published pragmatic multicentre factorial randomised controlled trial (RCT) testing measures to reduce surgical site infection in low- and middle-income countries (FALCON) is the largest RCT ever conducted across LMICs in the field of surgery. It was funded by the United Kingdom National Institute for Health Research (NIHR) and undertaken in 54 hospitals in seven countries, across three continents [5]. FALCON is an excellent example of how global collaboration can significantly address the challenges of, and improve surgical practice in the tropics.

There is an urgent need for concerted local and global efforts at finding solutions to the myriad of challenges bedevilling tropical surgical practice, if universal access to safe and affordable surgical care is to be improved. Public economic policies that engender economic growth and development would benefit health care delivery in the tropics. Government funding of health care should increase. This would guarantee availability of surgical supplies and equipment and improve infrastructural support in hospitals. Health insurance coverage should be optimised, and health-related savings encouraged amongst those not covered by health insurance. Public–private partnerships in public health care and funding of researches that impact tropical surgical practice are beneficial. These much and more were recommended by the *Lancet* Commission on Global Surgery, launched in 2014 to address the crucial gaps in access to surgical care in resource-poor countries [4]. Six years after the Commission published her Report, there is still a lot to be desired. It is time for a global re-awakening.

**Funding** The authors received no financial support.

**Declarations**

**Conflict of interest** The authors declare that they have no conflict of interest.

## References

1. Kingham TP, Kamara TB, Cherian MN et al (2009) Quantifying surgical capacity in Sierra Leone: a guide for improving surgical care. Arch Surg 144(2):122–127
2. Ubom AE, Adesunkanmi AO, Ndegbu CU et al (2021) Nigerian Surgical Trainees'' Work Schedule: It is Time for a Change! World J Surg 45(9):2653–2660
3. Badejoko OO, Ijarotimi AO, Osinubi RA et al (2013) Where there is no anaesthetist: the role of obstetrician-administered spinal anaesthesia for emergency Caesarean section. Trop J Obstet Gynaecol 30(1):68–74

4. Meara JG, Leather AJ, Hagander L et al (2015) Global surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The Lancet 386(9993):569–624
5. Ademuyiwa AO, Hardy P, Runigamugabo E, et al (2021). Reducing surgical site infections in low-income and middle-income countries (FALCON): a pragmatic, multicentre, stratified, randomised controlled trial. The Lancet. https://doi.org/10.1016/S0140-6736(21)01548-8