

# Enabling Access to Safe Surgery in Rural Africa through Mentorship: A Case Study



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## Introduction

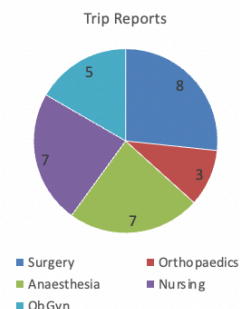
In low- and middle-income countries, surgical services at first-line referral district hospitals are essential to ensure adequate access to primary healthcare. District hospitals are the main source of hospital care for rural populations and therefore requires these hospitals to have adequate staff members and equipment. However, safe provision of pre-operative, operative, and post-operative surgical services remain to be a major challenge to district hospitals in Tanzania.

In 2018, Tanzania launched its first National Surgical, Obstetric, and Anaesthesia Plan to improve access to safe surgical care in rural areas. The Scaling up Safe Surgery for District and Rural Populations in Africa (SURG-Africa) project, established by EU Horizon 2020 program, contributed to the plan's operationalisation by establishing a program of in-service training, mentoring and supervision to build district hospital's surgical capacity. The aim of this study was to **determine the efficacy of the program and evaluate improvements in surgical skills.**

## Methods

A qualitative case study at Hai district hospital, one of the health facilities participating in SURG-Africa was conducted. Five mentors (in surgery, orthopaedics, obstetrics, anaesthesia and nursing) from central and regional hospitals visited Hai quarterly in 2018-2021 to teach surgical skills and mentor the local team.

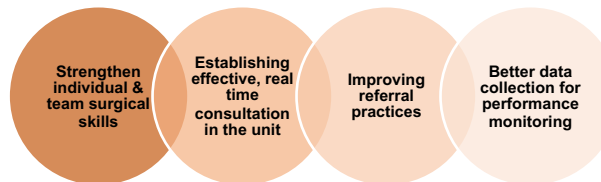
Hard copies of individual mentor's operating theatre reports (n=30) and a PowerPoint presentation delivered by the hospital were converted to excel format. Datapoints in the excel sheet was matched to the hard copy data for clarification and blank entries (n=10) were removed.



## Study Setting

Hai is one of the seven districts in the Kilimanjaro region and has a population of 210,533, mostly rural based (2). At the start of the project in 2017 the local hospital, Hai District Hospital, had a capacity of 120 beds. The surgical team comprised 8 surgical providers, 2 anaesthesia providers and a number of general nurses helping in theatre, with varying levels of training and skills. The hospital also had many challenges in terms of surgical infrastructure, equipment and supplies, making it one of the health facilities in the SURG-Africa sample with the lowest surgical capacity. Lack of sufficient skills and equipment were among the major reasons for referral of patients, even low complexity cases which should normally be done at district level, such as strangulated hernias and hysterectomies.

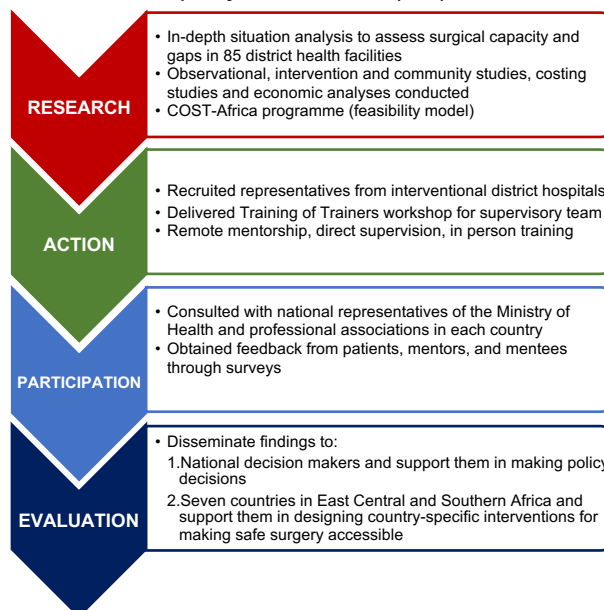
## Objectives of SURG-Africa



## The SURG-Africa Project

Scaling up Safe Surgery for District and Rural Populations in Africa (SURG-Africa) is a four-year implementation research project to improve access to safe and quality-assured surgical care for district and rural populations in Africa. Comprising three African and three European institutions, the project was funded by the European Commission's Horizon 2020 Programme. The objective is to build the capacity of district hospitals surgical teams through in-service training and mentoring delivered during periodic visits to surgically active hospitals and remote support of district staff according to their needs.

## Participatory Action Research (PAR) Model



## Results

Between January to November 2020, the number of consultant hospital referrals decreased compared to the time before SURG Africa program was implemented. Major improvements in surgical care were reported at an individual, team and unit levels.



### Individual Levels

Local surgical providers in general surgery and obstetrics and gynecology reported became more proficient and trained in essential procedures previously referred to higher level hospitals. Procedures that were performed include:

- Strangulated hernia repairs
- Appendectomies
- Cesarean sections
- Total abdominal hysterectomies

Upon post-operative review, there were minimal complications in each case and patients were discharged the next day.

Nurse wards noted several improvements in the preparation and management of operating theatres, including increased sterilization and preparation of instruments, waste segregation, decontamination, and the use of IPC guidelines. Post-operative cases were reviewed efficiently and improved the management of each patient.

Anesthetists reported better upskilling of existing guidelines such as pediatric resuscitation, the use of midazolam for sedation, and ketamine protocol. However, the benefits in the anesthesia team were limited due to a shortage in staff and equipment such as anesthetic machines, oxygen cylinders, and functional cardiac monitors.

### Team Levels

At the team level, the intervention enabled improved patient management (e.g. through correct use of antibiotic prophylaxis) and better collaboration among team members through the use of the WHO surgical checklist. The interdisciplinary team was better equipped to perform surgery with limited resources and managed to proficiently document each procedure performed in the operating theatre.

### Unit Levels

At unit level, a more efficient arrangement of the operating theatres was implemented to facilitate the work of the local team, and communication with hospital management for the procurement of surgical essentials (i.e., surgical drapes) improved thanks to supervisors' support.

## Discussion & Conclusion

Regular supervision and in-service training can increase the safety and quality of surgical care in Tanzania's district hospitals. The intervention benefited hospital care by improving surgical competency, preparation, communication and patient management. However, persistent challenges in regard to resources availability (i.e. cardiac monitors) and staff shortages (particularly in anaesthesia) should be addressed.