Surgical, Obstetrics and Anaesthesia Capacity in Tanzania: a Systematic Review

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Ministry of Health, Community Development, Gender, Elderly and Children

GE Foundation

Safe Surgery 2020

PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE
Harvard Medical School

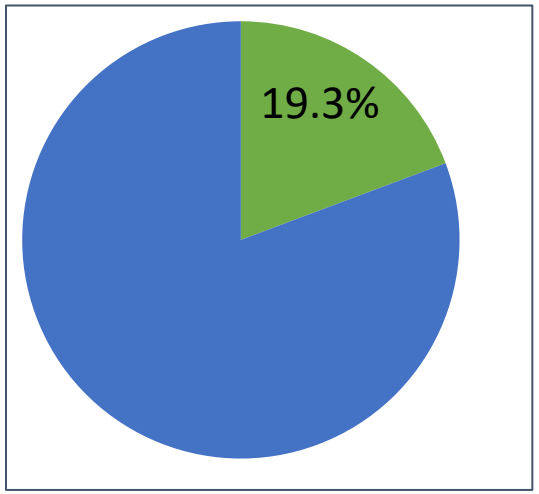
Lancet Commission on Global Surgery

Key messages:

1. 5 BILLION PEOPLE LACK ACCESS TO SAFE, AFFORDABLE SURGICAL AND ANESTHESIA CARE WHEN NEEDED
2. 143 MILLION ADDITIONAL PROCEDURES ARE NEEDED YEARLY TO FILL UNMET NEED
3. 33 MILLION FACE CATASTROPHIC EXPENSE AFTER SURGICAL CARE YEARLY
4. INVESTMENT IN SURGICAL AND ANESTHESIA CARE SAVES LIVES, IS AFFORDABLE, AND PROMOTES ECONOMIC GROWTH
5. SURGERY IS AN INDIVISIBLE, INDISPENSABLE PART OF HEALTH CARE

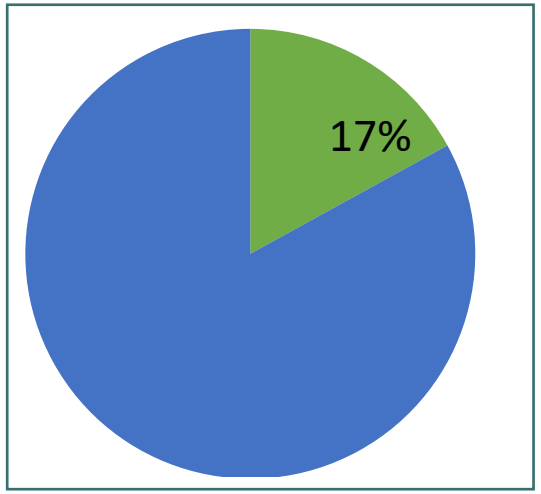
Burden of Surgical Diseases in Tanzania

DEATHS ATTRIBUTABLE TO SURGICAL CAUSES IN TANZANIA



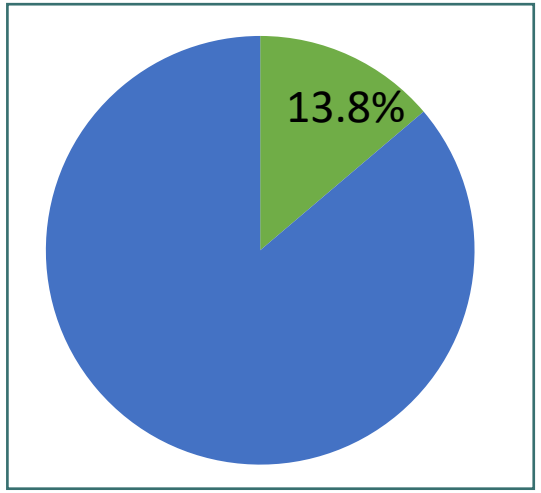
19.3% OF DEATHS IN TANZANIA ARE ATTRIBUTABLE TO DISEASE THAT CAN BE ADDRESSED BY SURGICAL AND OBSTETRIC CARE

SURGICAL BURDEN OF DISEASE TANZANIA (DALYs)



17% OF THE BURDEN OF DISEASE IN TANZANIA IS AMENABLE TO SURGICAL TREATMENT

INTERNATIONAL LMIC ESTIMATES OF POST C-SECTION DEATHS ATTRIBUTABLE TO ANAESTHESIA



3.96% OF ALL MATERNAL MORTALITY IN TANZANIA IS ANAESTHESIA RELATED

Systematic Review: Methods

- Performed a systematic Literature review of:
  - Published Scientific Literature
  - Grey Literature
  - Policies and Policy Guidelines in Tanzania
  - Data from MOHCDGEC
- Databases searched: PubMed, Embase, African Index Medicus, Google

Service Delivery: Surgery, Obstetrics and Anaesthesia

- 79% of hospitals provide basic surgical care
- 51% of district, regional and Zonal hospitals are ready to perform surgery (SARA, 2012)
- The Primary Health Services Development Program (MMAM 2007-2017) noted ”inappropriate” referrals due to deficiencies at lower level facilities
- In 2010, **70%** of patients seen at Muhimbili were self-referred, **67%** of these required surgical treatment. (Luboga et al., 2010)

Human Resource

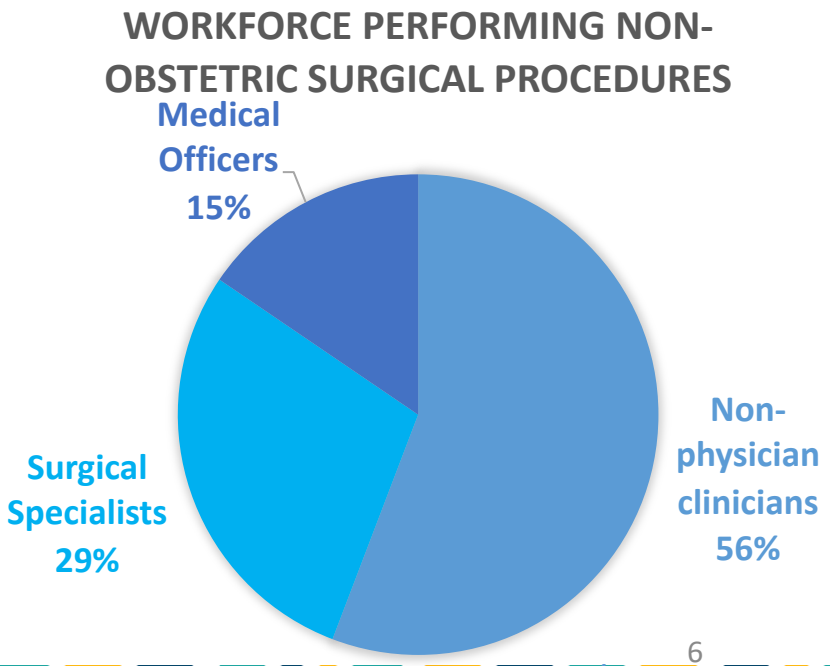
Total Surgeon, Anesthesiologists, Obstetrician /100,000

0.31

LANCET COMISSION TARGET

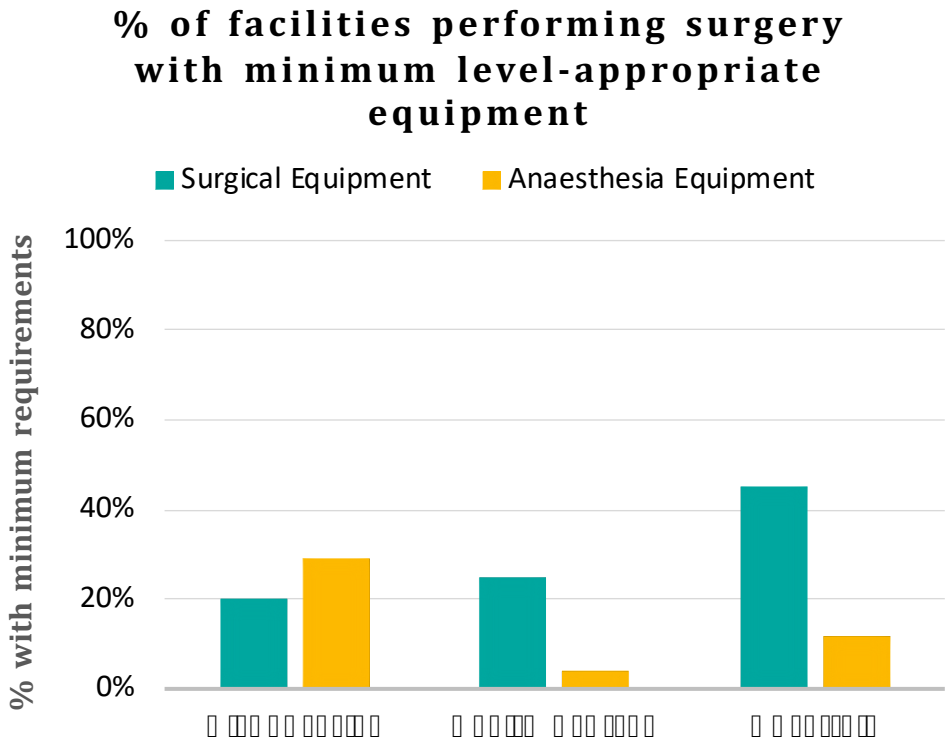
20-40

- Tanzania has 177 specialist surgeons (0.36 per 100,000 population)
- <22 Anaesthesiologists (0.05 per 100,000 population)
- 85% of surgeons practice in major cities
  - 64% in Dar es Salaam
  - Many not practicing/employed (NGO/MOH)
- A significant proportion of surgical procedures are performed by non-physician clinical providers
  - **85% of C-sections by AMOs** in Mwanza and Kigoma Regions
  - Most anaesthesia is provided by AMOs, Nurses and COs
  - 0.15 Anaesthesia Providers of any cadre per 100,000 population

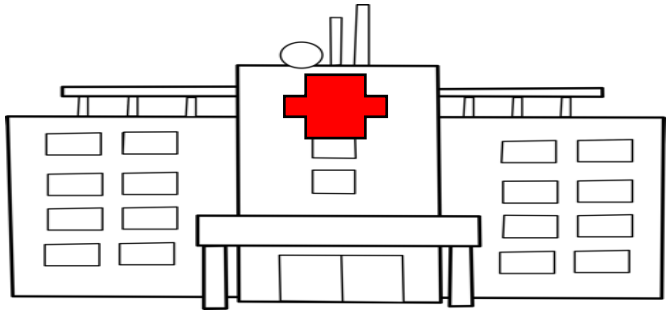


Source: (SARA, 2012)

Infrastructure

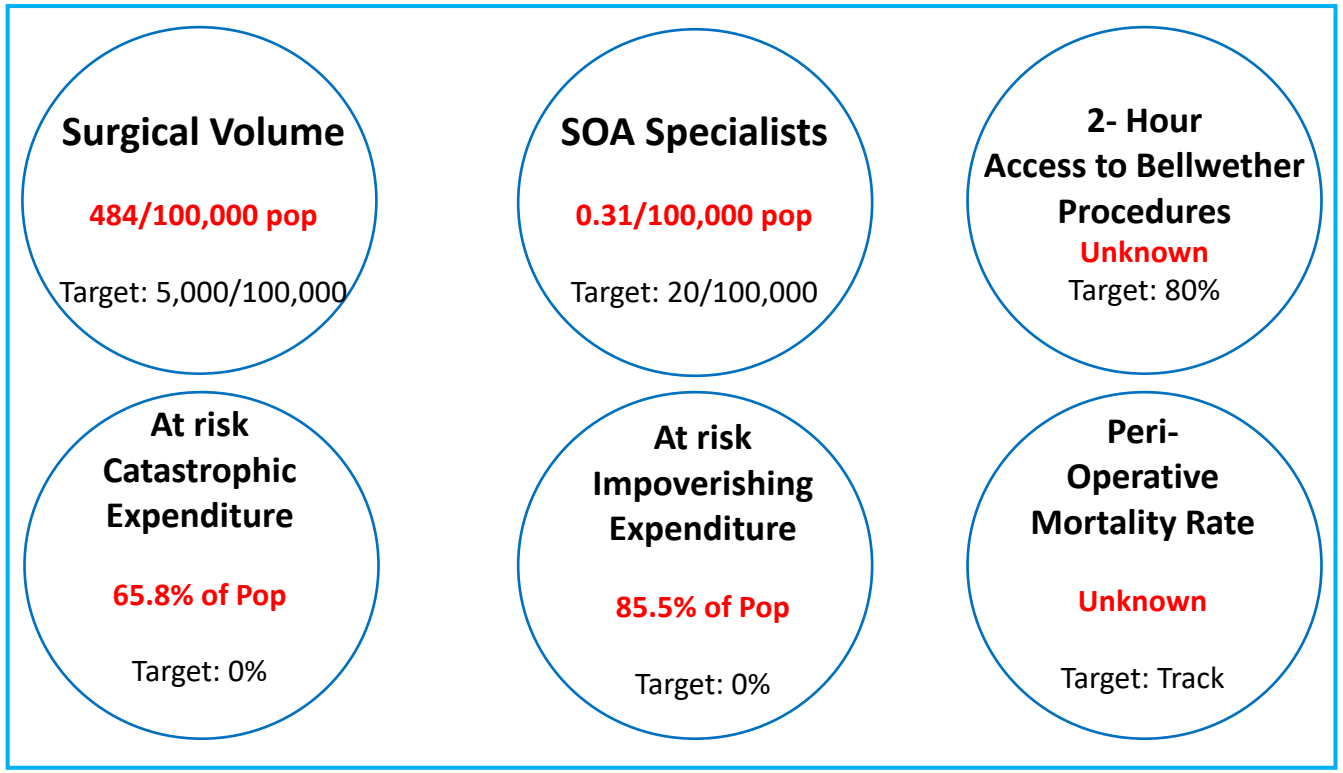


119 km



Information Management

- National Information Management
  - HMIS and HFR collect limited number of surgical indicators
- Facility Information Management
  - Most hospital records are paper-based
  - Data on post-operative mortality and morbidity is often not collected
  - Collected data is often not analyzed and used



Source: World Development Indicators; World Bank, 2016

Finance

- **11.3% of National Budget** allocated to Health annually (Lee et al., 2015)
- **35%** health funding from foreign aid
- Allocation to surgical care currently unknown
- **67%** of population at risk of catastrophic expenditure (World Bank, 2015)
- **86%** of population at risk of impoverishing expenditure (World Bank, 2015)
- **15%** of population has NHIF and about **7%** has CHF (Rambau et al., 2013; Macha et al., 2014)

Key recommendations for National Surgical Planning

1. Reviewing staffing guidelines to include SOA clinicians
2. Increasing access to SOA training programs including sponsorship for internships and residencies
3. Defining and regulating the role of non-physician surgical care providers
4. Developing retention plan to ensure equitable distribution of SOA services in rural areas
5. Working with each region to develop a referral plan including transfer criteria, referral logistics and community education
6. Defining and procure appropriate equipment and consumables for SOA services at each level
7. Collecting and integrating surgical indicators into current reporting mechanisms like DHIS2
8. Tracking proportion of budget allocated to surgery
9. Tracking systematic and direct costs for providing surgical care

References

1. Luboga S, Hsia RY, Matovu A, Macfarlane SB, Galukande M, von Schreeb J, et al. Human resource and funding constraints for essential surgery in district hospitals in africa: A retrospective cross-sectional survey. PLoS Medicine. 2010;7(3):1-11.

2. O'Flynn E, Andrew J, Hutch A, Kelly C, Jani P, Kakande I, Derbew M, Tierney S, Mkandawire N, Erzingatsian K. The Specialist Surgeon Workforce in East, Central and Southern Africa: A Situation Analysis. World journal of surgery. 2016 Nov 1;40(11):2620-7.

3. Baker T, Irestedt L, Ulisubisya M, Jörnvall H. Establishing an Anaesthesia and Intensive Care partnership and aiming for national impact in Tanzania. Globalization and Health. 2016;12(1).

4. Meara JG, Leather AJM, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The Lancet. 2015;386(9993):569-624.

5. Tanzania Service Availability and Readiness Assessment (SARA) 2012. 2013: Ministry of Health and Social welfare; 2013.

6. Pereira C, Mbaruku G, Bergström S, McCord C, Nzabuhakwa C. Emergency obstetric surgery by non-physician clinicians in Tanzania. International Journal of Gynecology and Obstetrics. 2011;114(2):180-3.

7. Kiprono S, Muchunu J, Beltraminelli H. The use of special stains at two dermatopathology laboratories in East Africa. Journal of cutaneous pathology. 2016;43(3):242-5.

8. Stafford RE, Morrison CA, Mahalu W, Godfrey G. Challenges to the provision of emergency services and critical care in resource-constrained settings. Global Heart. 2014;9(3):319-23.

9. Gupta S, Kushner AL, Stewart BT, Onchiri FM, Habermann EB, Chawla SS. Water availability at hospitals low- and middle-income countries: implications for improving access to safe surgical care. Journal of Surgical Research. 2016;205(1):169-78.

10. DiClemente RJ, Siegler AJ, Mbwambo JK. Acceptability of medical male circumcision and improved instrument sanitation among a traditionally circumcising group in East Africa. AIDS and behavior. 2012;16(7):1846-52.

11. Cohen H, Cherian M, Groth S, Noel L, Mwakyusa DH, Penoyar T, et al. Emergency and surgery services of primary hospitals in the United Republic of Tanzania. BMJ Open. 2012;2(1).

12. Mama Y. Factsheet on Tanzania's blood services: 2015. 2015.

13. Bryant Lee AD, Hope Lyimo, Rosemary Silaa. BUDGET ANALYSIS OF THE GOVERNMENT OF TANZANIA'S MINISTRY OF HEALTH AND SOCIAL WELFARE, FISCAL YEAR 2015/16. 2015.

14. Verguet S, Alkire BC, Bickler SW, Lauer JA, Uribe-Leitz T, Molina G, et al. Timing and cost of scaling up surgical services in low-income and middle-income countries from 2012 to 2030: a modelling study. Lancet Glob Health. 2015;3 Suppl 2:S28-37.

15. Rambau P, Masalu N, Gilyoma JM, Chalya PL, Mabula JB, Mchembe MD, et al. Triple assessment as a preoperative diagnostic tool for breast cancer at Bugando Medical Centre in northwestern Tanzania. Tanzania journal of health research. 2013;15(4):223-9.

16. Macha J, Kuwawenaruwa A, Makawia S, Mtei G, Borghi J. Determinants of community health fund membership in Tanzania: a mixed methods analysis. BMC Health Serv Res. 2014;14:538.

Thank you for listening.

Questions or Comments