

SURGICAL VOLUME IN SIERRA LEONE: A COMPARISON BETWEEN POPULATION AND FACILITY-BASED DATA COLLECTION

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Introduction

Surgical volume obtained from health facility records is one of the six indicators proposed by the Lancet Commission on Global Surgery. An alternative approach to assess surgical volume is from household surveys, which might be more suitable for low-income settings. The aim of this study was to describe the annual surgical volume in Sierra Leone through a population-based approach and compare this with health facility data.

Materials and Methods

This study is part of the PRESSCO 2020 (PREvalence Study on Surgical CONditions) study, a cross-sectional, countrywide descriptive study based on a randomly selected national representative sample. Data on surgeries performed annually including type and location was collected through interviews and compared with facility-based data.

Results

In total, 10 001 household members were included from 1854 households, who reported 152 major surgical procedures the year preceding the interview. Amounting an annual nation-wide surgical volume of 1520 (95%CI 1300-1780) per 100 000 population. The most common procedures were hernia repairs (30.9%), caesarean sections (23.7%) and appendicectomies (13.8%).

The population-based data collection identified an annual surgical volume of 1520 major surgical procedures compared to 372 procedures per 100 000 population in the 2018 facility-based study, a factor 4.1 difference (Table 1). For all procedure categories the population-based identified surgical volume was higher than the facility-based. The relative difference was highest for general surgery. Caesarean sections, appendicectomies and hernia repairs combined account for 68.4 and 46.4% of the total surgical volume in the household and facility study respectively. The number of major surgeries conducted in governmental hospitals were much higher in the population-based survey compared to the difference observed in the private sector.

	Surgical volume (procedures per 100 000 population)		Difference	
	Facility-based	Population-based (PRESSCO 2020)	Absolute (procedures per 100 000 population)	Relative
	2017 (95%CI)	2019/2020 (95%CI)		
Total	372 (340-410)	1520 (1300-1780)	1148	4.1
<i>By procedure category</i>				
General surgery	143 (120-170)	820 (650-1000)	677	5.7
Obstetrics & Gynaecology	133 (110-160)	450 (330-600)	317	3.4
Trauma/Injury (Orthopaedic*)	35 (20-50)	110 (50-200)	75	3.1
Dental operations	-	20 (0-70)	-	-
Ophthalmology	50 (40-70)	90 (40-170)	40	1.8
Other	0.4 (0-10)	-	-	-
Unknown	11 (10-20)	30 (10-90)	19	2.7
<i>By top 3 procedures</i>				
Caesarean section	102 (80-120)	360 (250-500)	258	3.5
Groin hernia repair	59 (50-80)	470 (350-620)	411	8.0
Appendicectomy	14 (10-20)	210 (130-320)	196	15.0
<i>By facility</i>				
Governmental	171 (150-200)	1200 (1000-1430)	1029	7.0
Private	201 (180-230)	290 (170-410)	89	1.4

* For the facility-based study of 2017 only orthopaedic surgeries were included.

Table 1. Comparison between population and facility-based data

Discussion and Conclusion

This household study demonstrated a four times higher national surgical volume than previously reported in Sierra Leone through facility-based data collection. Lack of triangulation of surgical volume data from comparable LICs indicate that the surgical volume indicators from facility-based data in low resource setting should be interpreted with care. We recommend to integrate the surgical volume indicator as a standardized and validated part of the DHS to be able to secure quality and routine population-based data collection that can be compared between countries and time.

Sierra Leone, with a surgical volume of 1520 surgeries per 100 000 population, did not reach the benchmark set by the LCoGS. Also, there is a considerable amount of major surgical procedures being performed every year in unregistered health facilities, outside of the scope of regulation health authorities. Additional research is necessary to obtain better insight of the full volume and the quality of these practices in LICs.