Results of a Surgical Key Performance Indicator Data Intervention in Rural Ethiopian Hospitals

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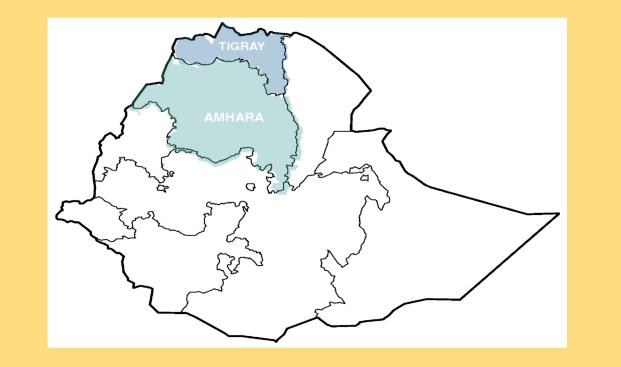
Background

In low and middle income countries, surgery is an oft-neglected field of medicine, exacerbated by a lack in quality of surgical data. There is a need for standardized metrics in global surgery, with practical indicators and mechanisms for data collection.

In 2016-2017, the Safe Surgery 2020 (SS2020) initiative, with the Ethiopian Federal Ministry of Health, developed fifteen surgical key performance indicators (KPIs) to measure capacity and quality of surgical care. New clinical registries and training materials were created to capture these indicators. To pilot these tools, an on-site data intervention was developed and implemented by SS2020 in 10 rural Ethiopian hospitals in 2018.

Methods

The data intervention commenced with training of local surgical mentors and providers from hospitals in the Amhara and Tigray regions. On-site visits were conducted by mentors and SS2020 staff to provide supervision and routine data quality checks. A final reporting workshop provided opportunity for discussion and to review each hospital's first month of high-quality data, focusing on 6 major KPIs:

(1) **Surgical Volume**
(2) **Surgical Site Infection (SSI) Rate**
(3) **Safe Surgery Checklist (SSC) Utilization Rate**
(4) **Peri-Operative Mortality Rate (POMR)**
(5) **Anesthetic Adverse Event (AAE)**
(6) **Surgical Referrals Out**

Results compiled from new registries were verified by trained mentors.

Findings

**Surgical Key Performance Indicators
Amhara & Tigray, Ethiopia**

1. **Surgical Volume**
2. **Surgical Site Infection**
3. **Peri-Operative Mortality**
4. **Anesthestic Adverse Event**
5. **Safe Surgery Checklist Utilization**
6. **Referrals Out**

The new data collection system was piloted successfully in all 10 hospitals. The first month of quality data from each region was March for Amhara, and June for Tigray. The aggregate data collected in hospitals in Amhara and Tigray, respectively, were as follows: surgical volume was 180 and 220, SSI rate was 0% and 0.90%, SSC utilization rate was 91.3% and 82.6%, POMR was 0.56% and 0.45%, AAE was 1.1% and 0.45%, and surgical referrals out was 279 and 175.

Indicator	Hospital KPI Value	
	Amhara	Tigray
Surgical Volume (n)	180	220
Surgical Site Infection (SSI) Rate (%)	0	0.90
Safe Surgery Checklist (SSC) Utilization Rate (%)	91.3	82.6
Peri-Operative Mortality Rate (POMR) (%)	0.56	0.45
Anesthetic Adverse Event Rate (%)	1.1	0.45
Surgical Referrals Out (n)	279	175

Interpretation

This intervention exhibits how a new system for surgical KPI collection and reporting can be effectively taught and integrated into rural Ethiopian hospitals. The results indicate that the new data collection tools adequately captured high-quality data for surgical KPIs. Further qualitative analysis from intervention hospitals and data quality assessments will lead to better iterations of the data intervention and surgical registries for potential national scale-up.

Acknowledgments