

SQUAD IN UGANDA: SURGICAL QUALITY ASSURANCE DATABASE (B)

The initial 24 months developing, refining, and implementing the SQUAD database brought into focus questions about expanding surgical capacity at Mbarara Regional Referral Hospital (MRRH). “The surgical capacity is so low, you want to expand it,” Dr. Firth explained. “So the question is what existing needs are they meeting, what needs require more resources, and where do they have no capacity at all?”

He cautioned that low patient volume in a given area did not necessarily indicate low underlying patient needs. “If they are not doing operations for cancer, it doesn’t necessarily mean they don’t need operations for cancer. It might just mean they don’t have the capacity. So the absence of operations for cancer might mean they need the capability to do cancer surgery. On the other hand, a high volume of trauma surgery may indicate they need more help in trauma.” The initial 24 months had provided baseline data to improve the understanding of hospital capacity for meeting patient needs.

Capturing Simple Outcomes

SQUAD focused on capturing admissions data including monthly and annual patient volume, and on what Firth called “very simple outcomes” such as how many people died. An

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additional level of nuance was the analysis of *specifically when* during the surgical care process they were dying. Prior to the SQUAD project, this level of specificity was not possible. Capturing precise mortality data would allow MRRH physicians and administrators to understand patterns. Firth expanded the questions. “Were patients dying during or after surgery? Are they dying immediately after surgery or a delayed period after surgery?” He believed this information could be valuable in formulating suggestions about underlying causes of death.

In fall 2014, SQUAD focused on a set of related data elements. Firth explained, “We need to know accurately how many patients are coming in and the mortality rates so we can determine how well they’re doing. We need to discriminate among different groups to determine where to bring in resources.” These objectives met indicators the Lancet Commission recommended for delivery of surgical and anaesthesia care. (See **Exhibit 1** for the Lancet Commission indicators.)

Providing Feedback to MRRH Physicians and Staff

Preliminary data collected in fall 2014 had not been validated. Nonetheless, SQUAD leadership began routinely presenting new data to each department. For the surgery department, they provided a breakdown of monthly and annual volume for trauma, oncology, pediatric, and general surgeries, as well as the number of records that were incomplete. Thus, the department could review its data capture and recording protocols in real time. Analysis of patient outcomes would become meaningful only to the extent that data-capture processes and data validity improved. (See **Exhibit 2** for sample admissions data for surgery.)

Fall 2014 department presentations offered an opportunity to discuss patient outcomes in a context of the overall surgical care process. Post-operative outcomes that were examined included mortality, length of stay, post-operative complications, and re-operation rate. Post-operative mortality was tracked and analyzed for those admitted to the ICU and for those admitted to the routine surgical ward, allowing insight into any differences in patient outcomes. However, it was important to note that no causal and associative links had yet been studied or demonstrated. (See **Exhibit 3A** and **Exhibit 3B** for sample schematics used for discussion.)



Firth noted feedback to the hospital was not couched as a directive. “We started giving feedback to departments which they themselves weren’t aware of. It’s their hospital, so it’s primarily their problem, and what they do with the data is their decision.”

Producing Co-Authored Academic Research

SQUAD aimed to deliver a factual basis for improving clinical care at MRRH, and the project was rooted in academic research. Firth said, “This is an academic project, so we want to establish the facts of disease burden, interventions, and outcomes. Of course, disseminating facts only to immediate healthcare providers is probably inadequate. What you want to do is publish outcomes so other people can learn, not just the departments.”

In fall 2014, a paper co-authored by MRRH, MGH, and the Program in Global Surgery and Social Change at Harvard Medical School was moving toward publication. The paper, titled *Surgical Care and Data Capture at a Ugandan Regional Referral Hospital: Retrospective Descriptive Study*, examined demographic data, surgical care delivery, and completeness of data capture at MRRH prior to SQUAD implementation.¹

Some believed co-authored research was a critical step in advancing SQUAD work beyond Uganda. Others were less convinced that academic research produced clinical results and impact beyond MRRH. Whether the research would gain a widespread audience remained to be seen, although it was clear SQUAD was breaking new ground. Firth remarked, “There are no other [comparable] data in the region. Nobody else has these data. You could use these data to compare MRRH outcomes both over time and also to European or American first-world data. But one would need to risk-adjust for patient population, so one can’t do a direct comparison.”

¹ Authors included Gerald Tumusiime, MBChB; Adam Was, MD; Mark A. Preston, MD; Johanna N. Riesel, MD; Stephen S. Ttendo, MBChB; and Paul G. Firth, MBChB.



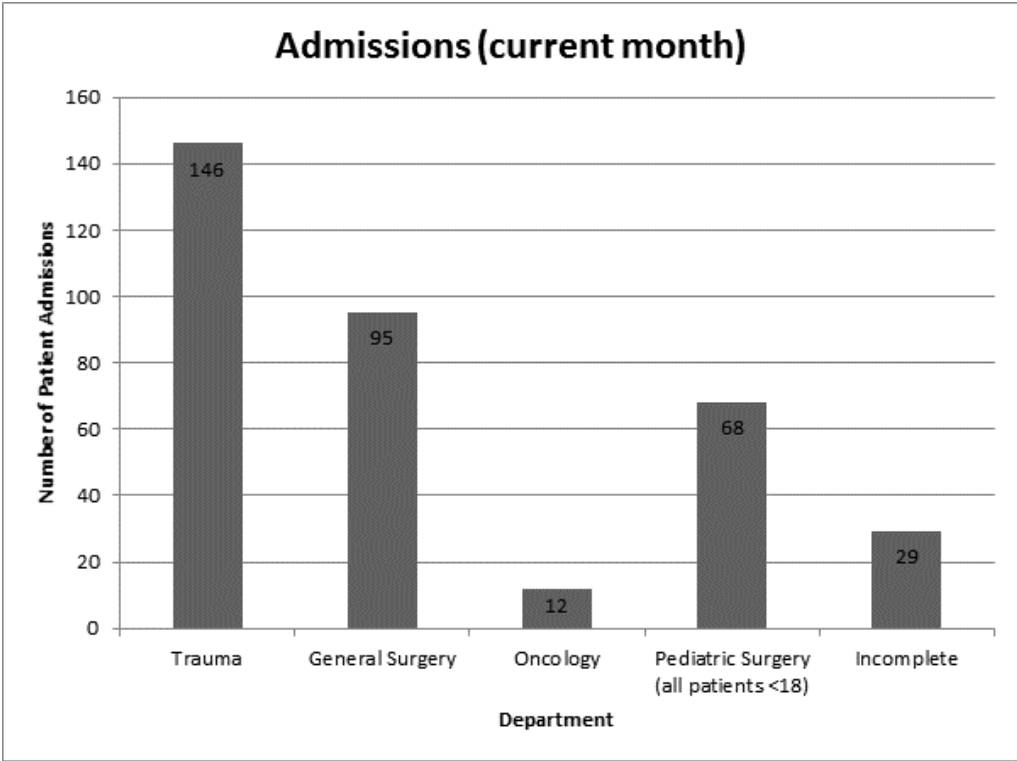
EXHIBIT 1 Lancet Commission, Group 2 Indicators for Monitoring Surgery and Anesthesia at a Global Level: Delivery of Surgical and Anesthesia Care

INDICATOR	DEFINITION	RATIONALE	DATA SOURCES	RESPONSIBLE ENTITY	COMMENTS	TARGET
<i>Group 2: Delivery of surgical and anaesthesia care</i>						
Surgical volume	Procedures performed in an operating theatre, per 100 000 population, per year	The number of surgical procedures performed per year is a rough indicator of realized access	Facility records	Facility MoH	When monitored together, surgical volume and POMR can generate a crude estimate of unmet need	1. 80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume 2. 5 000 procedures per 100 000 population by 2030
Perioperative mortality rate (POMR)	All cause death rate prior to discharge among patients having one or more procedures in an operating theatre during the relevant admission	Assesses surgical safety, encompasses deaths in the operating theatre and in the hospital post-procedure	Facility records and death registries	Facility MoH	Risk adjustment using age, emergency versus planned, and ASA for comparisons	1. 80% of countries by 2020 and 100% of countries by 2030 tracking POMR 2. In 2020 evaluate global data and set national targets for 2030

Source: Meara, John, M.D., Leather, Andrew MBBS, and Hagander, Lars, PhD (First Authors), (2015) "Table 1" in Global Surgery 2030: Evidence and Solutions for Achieving Health, Welfare and Economic Development, Lancet Commission Report.



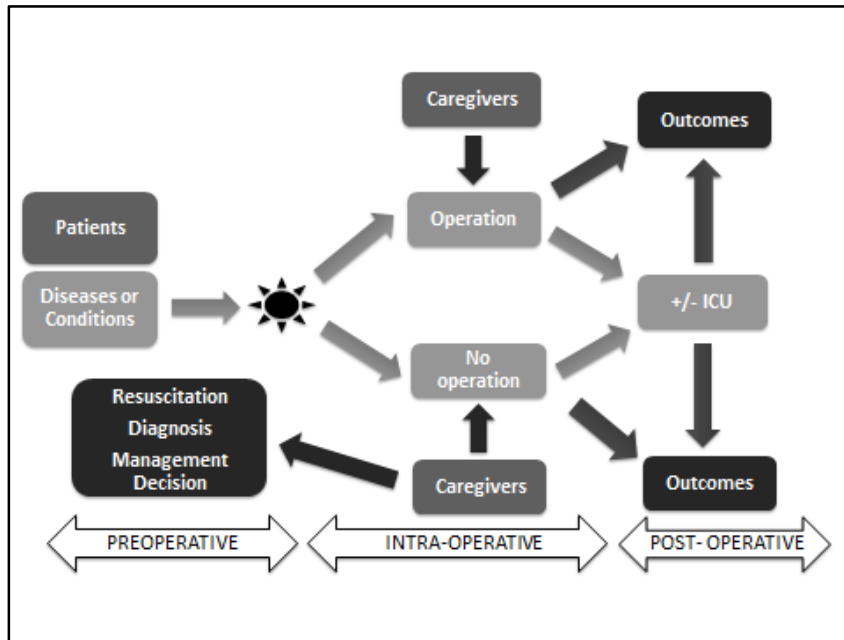
EXHIBIT 2 Sample Mock Data for Surgery Department Admissions



Source: Data prepared by author, fictitious and provided for illustrative purposes only. Based on information provided by SQUAD leadership.

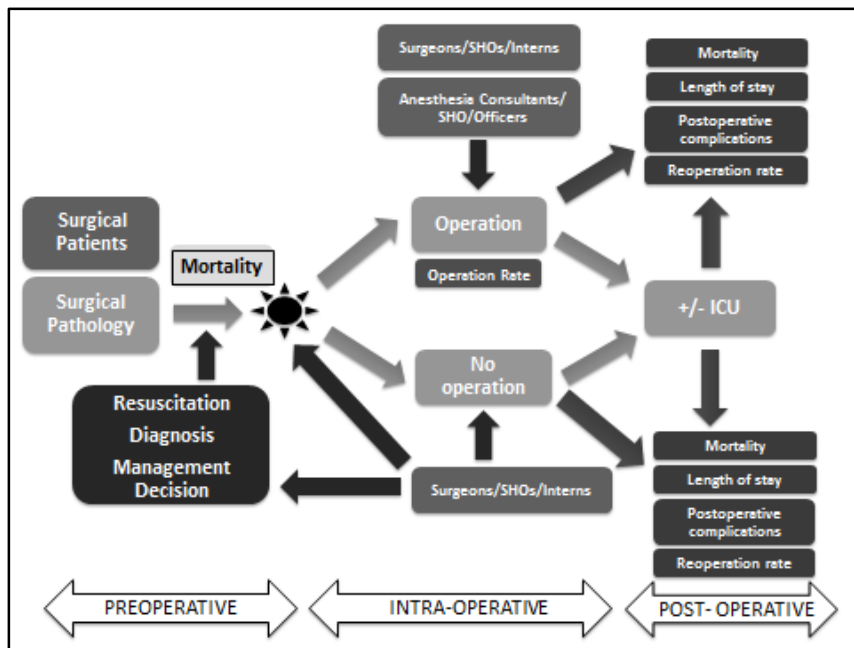


EXHIBIT 3A Surgery Department Presentation, Fall 2014



Source: MRRH Surgical Department Quality Assurance Report Presentation.

EXHIBIT 3B Surgery Department Presentation, Fall 2014



Source: MRRH Surgical Department Quality Assurance Report Presentation.