



# Indirect Methods for Measuring Surgical Quality in Africa: A Systematic Review

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## ABSTRACT

### Indirect Measures of Surgical Quality in Africa: A Systematic Review

#### BACKGROUND:

Global Surgery is an increasingly discussed public health matter. It is clear from studies that delivery of surgical services in many parts of Africa, is inadequate. There are many suggestions for improvements, yet it remains unclear how to best quantify these. There is no clear consensus on which metrics effectively measure improvements in surgical care.

#### METHODS:

We chose the standard operations of: appendectomy, clubfoot, cleft lip/palate, caesarian section, and cataract removal. We performed a PubMed search looking at all publications from Africa in English, related to these operations between 2000 and 2013. We found 1225 publications. We read each paper; searching for numerical denominators regarding patients, care givers, institutions or services, which represented metrics in the capacity or delivery of surgical care. Each denominator was discussed, and a list of key metrics was produced in the form of a checklist.

#### CONCLUSIONS:

Our findings will serve as the basis on which to develop an evidence-based checklist, which will facilitate an already-tested set of metrics to be used in the indirect measurement of surgical care in Low and Middle Income Countries.

## BACKGROUND

- Global Surgical Inequality is a pressing public health matter
- There are ethical and economic arguments to address this disparity<sup>1</sup>
- Delivery of Surgery in many parts of Africa, is inadequate<sup>2</sup>
- The 15x15 campaign identifies essential surgeries, as affordable, accessible and effective<sup>3</sup>
  - This lists 15 surgical conditions which account for 80% of the basic surgical needs within the community<sup>3</sup>
- Investment in essential surgeries can make a significant public health impact
- There are many initiatives to improve provision of surgery in Lower Middle Income Countries (LMICs)
- It remains unclear how to track improvements in provision on a large scale
- There is no clear consensus on which metrics should be used
- Identifying a low cost method of monitoring surgical quality and capacity would be useful

## OBJECTIVES

- Quantify the surgical papers being published relating to Africa
- Identify metrics commonly reported in African surgical literature
- Determine the frequency of reporting
- Identify which metrics are useful as indirect measures of surgical quality
- Produce a checklist that can be used as guidance for authors and journals to encourage publication of useful data
- Facilitate comparison between centres through use of the checklist

## METHODS

- We conducted a systematic review via PubMed of Surgery in Africa
- Papers published between 2000 and 2013
  - We limited searches to essential 'tier 1' operations as designated by the '15x15' campaign:
    - Appendectomy
    - Cataract
    - Caesarean Section
    - Club Foot Correction
    - Cleft Lip/Palate Repair
  - These essential surgeries represent a significant proportion of the surgical demand in LMICs
- Exclusion criteria (see Fig. 1):
  - Case studies
  - N <10
  - Papers not published in English
  - Papers not related to surgery
  - Papers not related to Africa/an African country
  - Paper or Abstract not available on Oxford University network
  - Animal-based studies

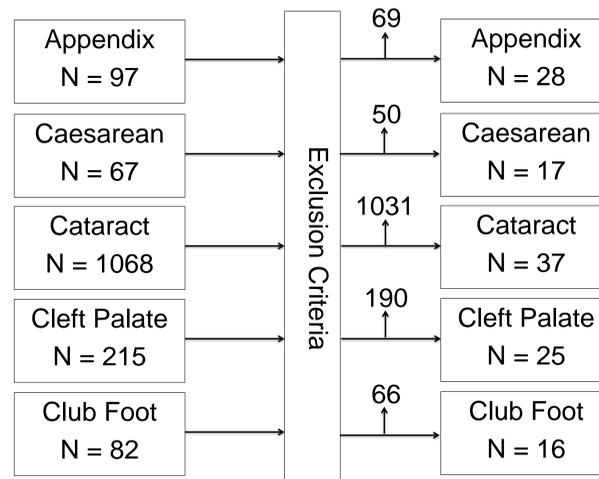


Fig. 1. Exclusion flow diagram

- Two independent reviewers screened all titles and abstracts for eligibility
- Any papers available on the Oxford University network were read in full
- If full papers were unavailable, abstracts were analysed separately
- Data gathered was divided into 2 groups, 'abstract' or 'full papers'
- Reported metrics were recorded
  - A table of metric and frequency, by operation, was produced
- This data formed the basis of discussions to devise a checklist of key metrics
- Metrics were included in the checklist on the basis of:
  - Frequency with which they are currently reported
  - Ease of collection
  - Utility in measuring the quality of surgical care
  - Applicability to multiple surgical interventions

## RESULTS

- Whilst heterogeneity existed in reported metrics, a number of common themes were seen across all operations investigated
- A core selection of metrics were persistently reported, irrespective of operation
- The top 35 metrics reported are shown in Fig. 2, weighted by frequency

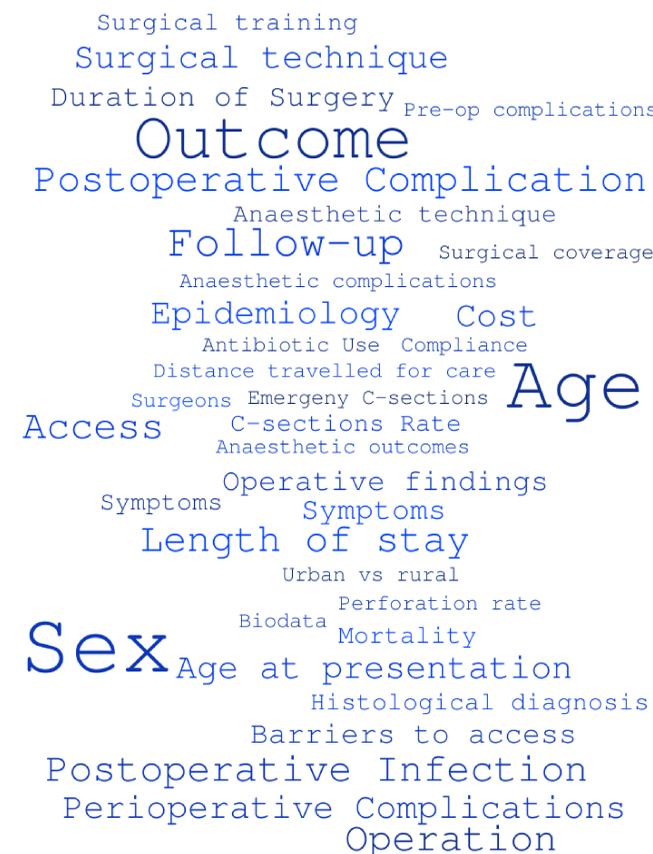


Fig. 2. Graphical Representation of metrics reported, size weighted by frequency

- The data were used to produce a checklist of key metrics
- These metrics are easily collected and reported
- The checklist can be used across many different operations and disciplines
- It is hoped these metrics will be reported as a minimum in all future surgical papers from Africa
- This will provide a low cost and freely accessible dataset
- Such a dataset will facilitate comparison between surgical centres
- Measurement of surgical provision and quality will provide feedback on the efficacy of interventions, and allow progress to be monitored
- Information can then be used to guide future policy decisions

## RESULTS

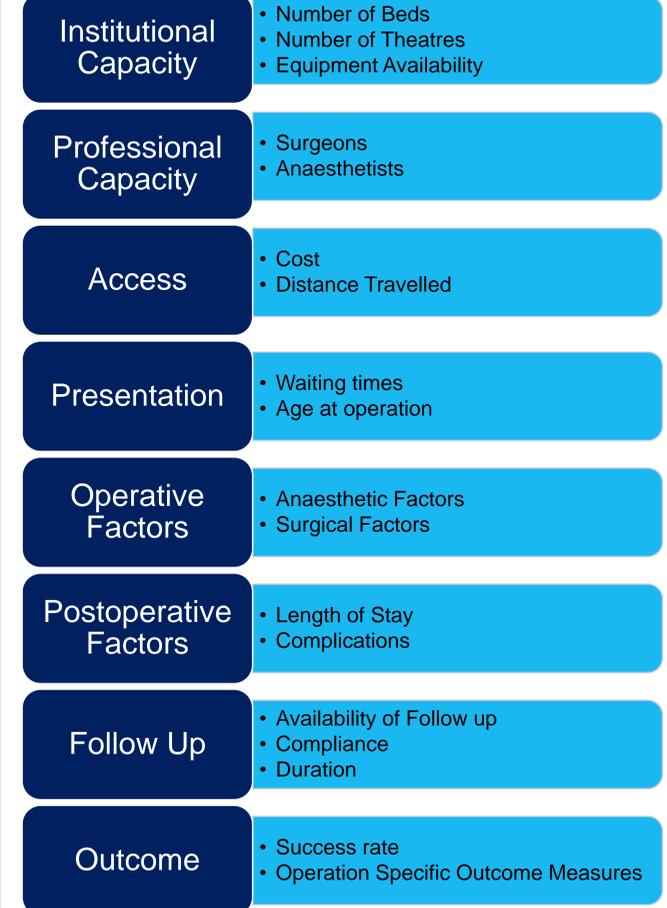


Fig. 3. Recommended Checklist for metrics to be reported on submission of papers

## CONCLUSIONS

- Our findings form the preliminary basis for a checklist of surgical metrics
- The metrics included are already frequently reported
- A checklist would encourage more widespread reporting of key metrics
- Journals and authors should be encouraged to use this checklist when publishing
- This would provide easily accessible, low-cost, indirect measurements of surgical quality at publishing centres

## REFERENCES

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2. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. Meara, John G et al. The Lancet, Volume 386, Issue 9993, 569 - 624
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