



# A review of anesthesia airway management in low-income countries and description of planned survey in Uganda

GLOBAL HEALTH



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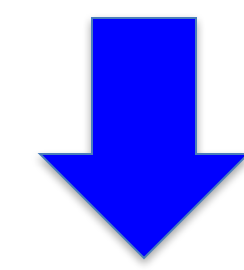
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## REVIEW

### Anesthesia Safety Disparity

- ◆ In the last few decades, industrialized countries have dramatically reduced perioperative mortality due to the implementation of standardized monitoring and improved safety practices.

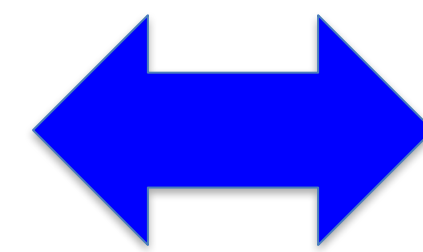
Early 1980s: US, UK, and Australia had an anesthesia avoidable-mortality rate (AMR) of 1:5,000-1:10,000<sup>2345</sup>.



Today: Anesthesia AMR in first world countries is <1:200,000, a 95% decrease in mortality.

- ◆ However, low-income countries (LICs) continue to have a perioperative mortality rate 100-1000x that of developed countries<sup>1</sup>.

1990s-2000s: Published series reveal an anesthesia AMR of 1:3000<sup>6</sup> and 1:482 in Zimbabwe<sup>7</sup>, 1:504 in Malawi<sup>8</sup>, and 1:150 in Togo<sup>9</sup>.



### Airway Morbidity & Mortality

- ◆ Airway complications are a major contributor to intraoperative anesthesia morbidity and mortality in resource-poor countries.
  - Malawi Hospital: Intubating difficulties were responsible for 25% of complications and 14% of deaths.
  - Togo Hospital: 8 of 11 deaths were due to compromised airways.
  - Doctors Without Borders 2008-2014: Adjusted odds of death for general anesthesia without intubation were 1/3 of those with general anesthesia plus intubation<sup>5</sup>.
  - Obstetric patients account for up to 50% of anesthesia-related deaths in LICs<sup>1011</sup>, which may be partially attributable to the pregnant woman's increased risk of difficult airway and aspiration.

Major preventable causes of airway-related anesthesia mortality in LICs include difficult airway management, aspiration, lack of training, and inadequate supervision of trainees.

## Survey Proposal

### Focus on Airway

- ◆ The 2009 WHO Safer Surgery Guidelines Objective 3 focuses solely on airway management<sup>6</sup>.
- ◆ Previous surveys in Uganda on anesthesia capacity found there remain severe limitations to provide safe anesthesia at the majority of hospitals<sup>121314</sup>. However, no prior survey in Uganda has focused on anesthesia airway management.

Improvement in airway management has become an international focus for improving safe anesthesia.



### Survey Aims

- ◆ Describe current practice patterns of intraoperative airway management in Uganda.
- ◆ Identify available equipment, airway management strategies, and consequences of difficult airways in a low-resource setting.
- ◆ Delineate specific problem areas faced by anesthetists in a low-resource setting.

### Survey Development

- ◆ Take into account minimum safety standards as outlined in global safer surgery initiatives and published difficult airway guidelines.
- ◆ Expert opinion was obtained from Ugandan physician anesthetists, to ensure applicability to a low-resource environment.

### Survey Methods:

- ◆ Eligibility: Physician and non-physician anesthetists, including trainees, actively practicing in Uganda.
- ◆ Recruitment: Via personal contacts of the investigators, through national anesthesia societies and meetings, and by directly contacting the anesthesia department at hospitals. We will use purposive sampling, based initially on previous collaborations and networks known to the investigators, and subsequent snowball sampling, to identify potential respondents.
- ◆ Representative Sampling: We aim to survey each region of Uganda, including different hospital practice types and provider levels. Our sample size will be small, as the total number of anesthesia providers is limited in Uganda. In 2015 there were only 47 physician anesthetists for a population of 36 million people<sup>15</sup>.

### Future Directions

- ◆ Survey results will help create a base of knowledge of the current practice of intraoperative airway management by Ugandan anesthetists.
- ◆ Survey may be applied to other LICs.
- ◆ Stakeholders such as national and international anesthesia societies, governments, nonprofit organizations and donors, will be able to better target education and limited resources to improve safe airway management, and thus reduce anesthesia-related morbidity and mortality in LICs.

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