

# The Lancet Commission on Global Surgery

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KING'S  
*College*  
LONDON



## Working Group Feedback

Information Management

Saturday January 18, 2014

The Lancet Commission on Global Surgery  
1<sup>st</sup> meeting in Boston, MA, USA | January 17-18 2014

# Participants

- George Baison
- Genevieve Bernard
- Steve Bickler
- Tiffany Chao
- Mack Cheney
- Aihnoa Costas
- Paul Firth
- Richard Gliklich
- Sarah Greenberg
- Russell Gruen
- Alex Haynes
- T. B. Kamara
- Meera Kotagal
- Chris Lavy
- Andy Leather
- Rebecca Maine
- Eric Nagengast
- John Rose
- Richard Sullivan
- Carrie Teicher
- David Watters
- Tom Weiser
- Iain Wilson

Majority had:

- Experience working with WHO
- Been involved with the development or use of metrics
- Hands-on experience providing care in the field in LMICs















# Optimism, infused with experience

*“It’s hard to determine useful metrics for surgical care in the US.”*

*“We are too flawed in developed countries and it might be nice to develop a tabula rasa in terms of collecting patient data.”*

*“We’re all looking for a way to go South to North. It’s a blank canvas and you can innovate there much easier there.”*



# Information Management Group Scope of Work



## 1. Metrics

- Current State
- Development
- Field Testing

## 2. Essential Conditions/ Procedures

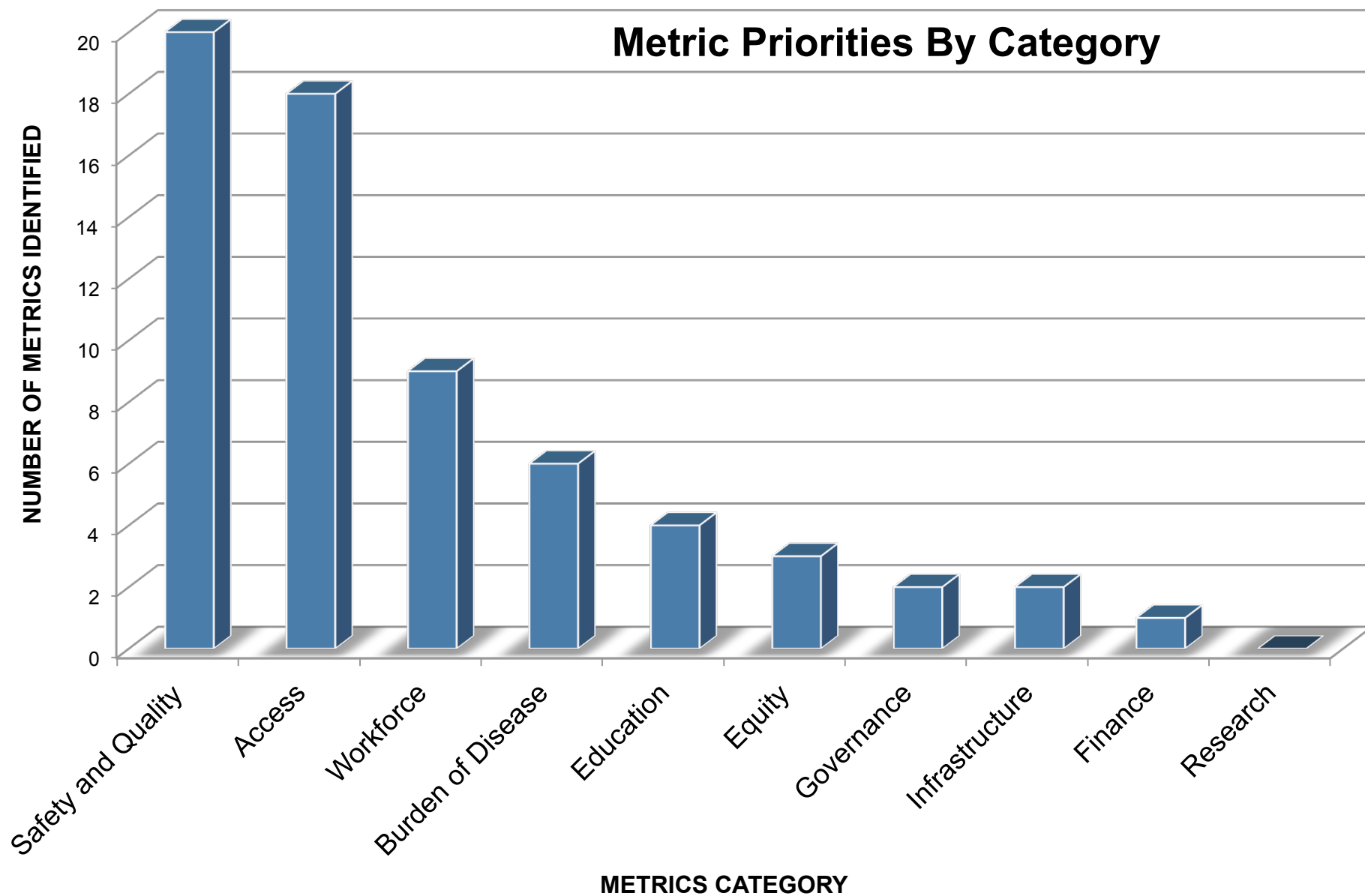
## 3. Data Issues

- Definitions
- Availability
- Consistency
- Collection/Feasibility

## 4. IT Infrastructure

## 5. Research

*Universal access to  
safe surgery and anesthesia when needed  
(with financial protection)*





# Survey Instruments

	Service Availability and Readiness Assessment (SARA)	Living Standards Measurement Survey (LSMS)	Demographic Health Surveys (DHS)	Tool for Situational Analysis to Assess Emergency and Essential Surgical Care	World Health Survey	Personnel, Infrastructure, Procedures, Equipment and Supplies (PIPES) Surgical Assessment	Harvard Humanitarian Initiative Survey
Developed by	WHO and USAID	World Bank	Measure DHS Group*	WHO GLESC research group	WHO	Surgeons Over Seas (SOS)*	Harvard Humanitarian Initiative
Type	Institutional	Household	Household	Institutional	Household	Institutional	Institutional
Where?	2 countries*	39 countries	90 countries	30 countries*	70 countries	3 countries*	7 countries*
How often repeated	Not yet repeated anywhere	Preferably every 3 to 5 years	Every 5-7 years in countries that repeat the survey*	Never repeated in the same country	Only done once	Never repeated in the same country	Never repeated in the same country
Training for data collectors	1 week training course	Assistance is offered by the LSMS	The DHS standard approach to training*	Instructions for the survey are on the survey		All surveys were carried out by the authors of the papers	All surveys were carried out by the authors of the papers
Time to administer individual survey	Team of 2 can do ~2 per day	Highly variable on survey design and location		Variable – surveys were mailed to the sites*		15-90 minutes	~1 hour
Time to complete country wide survey administration	3 weeks in Sierra Leone, 2-3 months in Zambia	Highly variable on survey design and location	18-20 months		All data was collected between 2002-2004	1-2 months	~1 month
Sampling Methods	Stratified Randomized Sampling based on type of health center and region	Cluster Sampling	Stratified 2 stage cluster design	Distribution of the survey left to discretion of local collaborators*	Population cluster design	Different in each country	Geographical Convenience Sampling
Surgery Specific	Yes	No	No	Yes	No	Yes	Yes
How well does it address infrastructure?	Well	Not at all	Not at all	Fairly*	Not at all	Fairly*	Well*
How well does it address human resources?	Fairly*	Not at all	Not at all	Well*	Not at all	Fair	Well
How well does it address surgical outcomes?	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Fair
How well does it address output?	Poorly*	Not at all	Not at all	Fairly	Not at all	Fairly	Well*
How well does it address access?	Not at all	Fairly	Poorly	Poorly*	Poorly*	Not at all	Fairly

# **World Health Statistics 2013**

## **Indicator compendium**

# Metrics

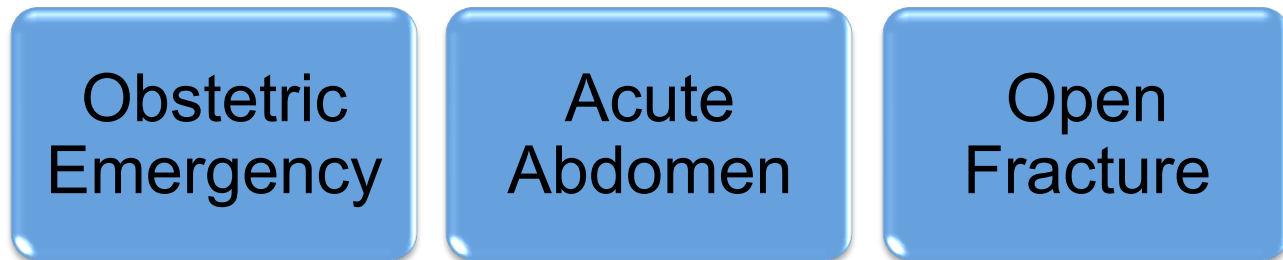
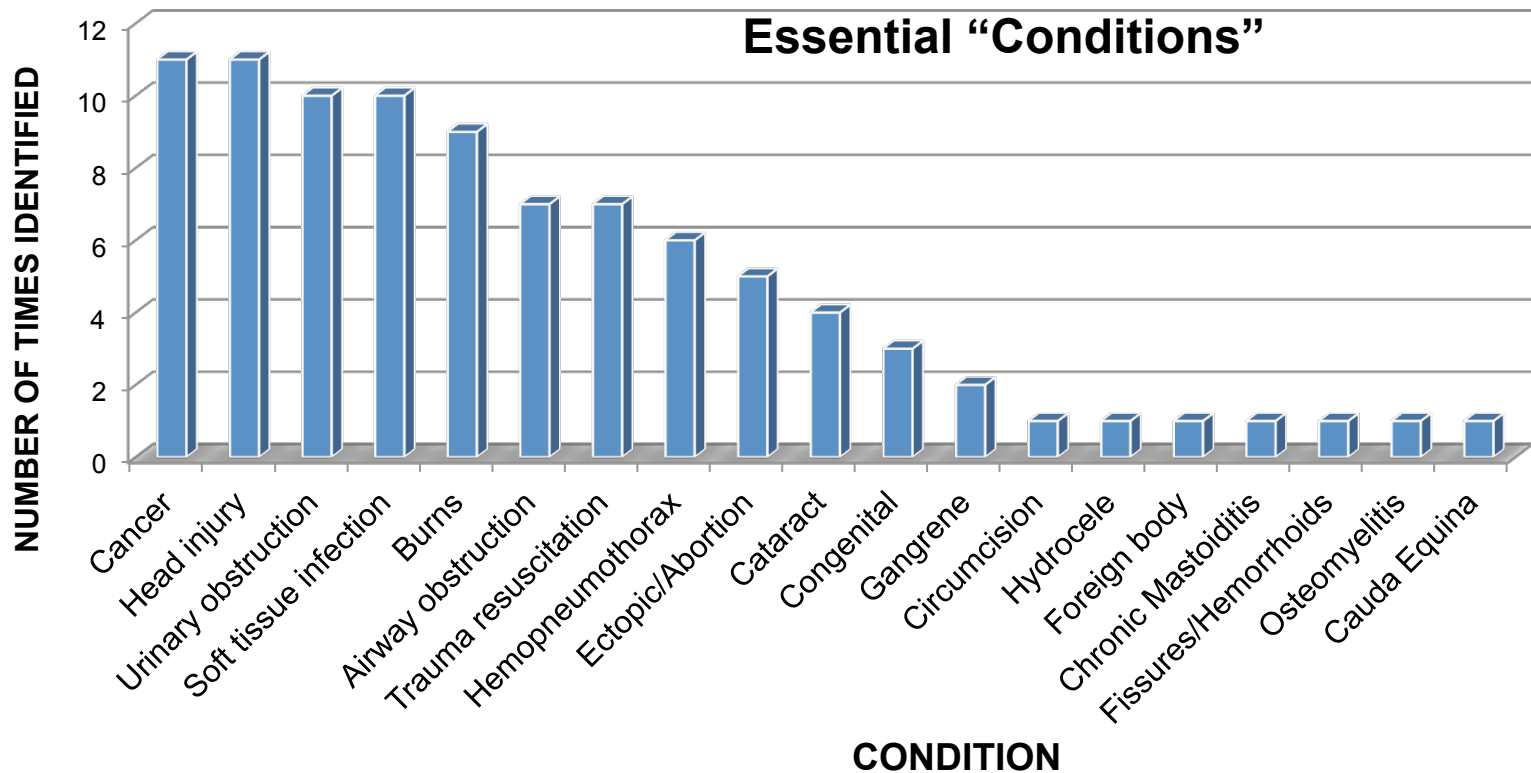
Indicator/ Metric	Metric Area	What is measured	Numerator	Denominator	How it's measured	Where it's been used
<i>Annual number of cases per population</i>	Access - Output	Number of cases per population	Number of operations done across evaluated facilities	Population size	Retrospective theater log review  HIS reporting	Survey tools: WHO EES, HHI, PIPES  Individual studies  WHO metrics (Weiser, Makary et al. 2009)
<i>Percent of operative cases that are cesarean</i>	Access- Output	Percent of overall operations performed that are cesarean	Number of cesarean performed at facility/region in time period	Number of total cases performed in region/facility over the time period	Retrospective review of surgical logs to capture cesarean and other surgical procedure.	Sub-Saharan Africa(Kushner, Groen et al. 2010)  Haiti(Hughes, McClain et al. 2013)
<i>Annual case volume by World Bank Health Spending Level</i>	Access- Output	Modeling of total number of cases performed in countries divided	Number of surgeries (major) conducted at a national level	Population (100,000 people)	Nationally reported data and/or rates were collected from 48 countries. National estimates were extrapolated from available facility data at an additional 8 hospitals.  Per capital health expenditure for each country were calculated to evaluate surgical rates by expenditure levels.	Modeling results to estimate annual global surgical volumes were imputed for countries with missing data.(Weiser, Regenbogen et al. 2008)
<i>Percent of cases that are emergent vs elective</i>	Access-Output	Percent of total cases performed in facility and/or regions that are emergency vs elective	Number of emergency cases performed at hospital/region during a given time period (year)	Number of total cases performed in the hospital/region during the time period	Retrospective review of operative logs	Ethiopia (Reshamwalla, Gobeze et al. 2012) among others
<i>Day of surgery post-operative mortality</i>	Safety - Perioperative mortality	Mortality rates in the 24 hours after surgery	Number of patients who die on the day of surgery in a facility or region for a given time period	Number of patients undergoing surgery in that facility or region during that time period	Retrospective review of operative logs  Review of mortality logs	WHO recommended metric (Weiser et al 2009; Molia et al 2012)
<i>Intra-operative mortality</i>	Safety - Perioperative mortality	Mortality rate in the operative theater	Number of patients who die in the operating theater after the start of induction during a given time period	Number of patients undergoing operation in the theater during the given time period	Retrospective review of operative logs/records and mortality logs  Reporting of mortality rates from hospital statistics	Harvard Humanitarian Initiative Survey Tool (Harvard Humanitarian Initiative 2010)



# Identified Potential Key Metrics

Class	Metric
Infrastructure	% Operating theatres reaching Minimum Operating Theatre Standards (MOTS)
Safety	Peri-Operative Mortality Rate (% of procedures) (*risk adjustment)
Access	Procedures per 100,000 population per year
Equity	To be determined (& based on access measures)
Governance	Presence of a National/Regional Surgical Plan
Education	
Finance	
Workforce	To be advised
Finance	
Burden of Disease	To be determined







# WHO Primary Surgical Package

Procedure/Treatment	Procedure/Treatment
Resuscitation	Tubal Ligation/vasectomy
Cricothyroidotomy/tracheostomy	Male circumcision
Intercostal drainage	Laparotomy and appendectomy
Acute burn management	Hernia repair and hydrocoele
Incision and drainage abscess	Cystostomy/ suprapubic catheter
Wound debridement	Drainage of osteomyelitis/septic arthritis
Suturing/Repair of wounds	Open/close treatment of fracture
Caesarean Section	Biopsy/Excision of lumps
ERPC/ Assisted delivery	Ketamine, spinal, general anaesthesia
Obstetric Fistula Repair	Club foot repair
Neonatal surgery	Cleft Lip repair

Major Category	Surgical condition as specified in Global Burden of Disease	Associated procedure from WHO Surgical care at the district Hospital [Essential procedures]	DALYs averted
Digestive Diseases [Acute Abdomen]	Appendicitis	Appendectomy Drainage of Appendiceal abscess	
	Gall bladder and bile duct disease	Cholecystectomy Cholecystostomy	
	Hernia	Elective repair of external including inguinal hernias Emergency repair of strangulated external including inguinal hernias	
	[Paralytic ileus &] bowel obstruction	Nasogastric decompression Exploratory laparotomy Enterolysis (division of adhesions) Small bowel resection Colostomy (loop and end) Reduction of sigmoid volvulus (operative and non-operative)	
	Abortion	ERPC, Manual vacuum aspiration	
Maternal-neonatal [Complications of Pregnancy]	Maternal haemorrhage	Dilation and Curettage Culdocentesis Colpotomy Salpingostomy or salpingectomy for ectopic pregnancy Repair of ruptured uterus Repair of bladder injury Manual removal of placenta Repair of cervical, vaginal and perineal tears Uterine inversion Uterine and uteroovarian artery ligation Total and sub-total hysterectomy Bimanual compression of uterus	
	Obstructed labour	Assisted vaginal delivery with forceps or vacuum) C-section Craniotomy & craniocentesis	
	Neonatal encephalopathy	Assisted vaginal delivery with forceps or vacuum) C-section	
Injuries	Road injury	Trauma resuscitation	
	Other transport injury	Airway management (tracheostomy, orotracheal intubation, cricothyroidotomy) Venous Access (venous cut-down, intraosseous)	
	Falls	Chest drain/tube Pericardiocentesis	
	Fire, heat and hot substances	Wound management (primary closure, secondary closure and delayed primary closure) Amputations (guillotine, definitive) Diagnostic peritoneal lavage	
		Laparotomy Repair of ruptured bladder	
	Exposure to mechanical forces	Burr hole (cranial) Fracture management (cast application/removal, splint, skeletal traction, skull traction, external fixation, fasciotomy)	
	Adverse effects of medical treatment	Burn management (split thickness skin graft, escharotomy)	
	Animal contact (non-venomous)		
	Unintentional injuries not classified elsewhere		
	Interpersonal violence		

# Important Points

- Align with GBD study and WHO lists, surveys and priorities
- Undertake Feasibility/Field Testing & Validation (prior to publication of Commission report)
- Anticipate unintended consequences of indicators



# Broad issues needing consideration

- How will indicators be used, and what are the keys to their successful use, and what the implications for their selection, definition and collection?
- Concepts to advance for consideration in the Commission:
  - Definition of recommended minimum operating theatre standards (Recommended MOTS)
  - a list of essential surgical procedures (or conditions)
  - a minimum dataset and recommended data collection form (& is risk-adjustment necessary & feasible?)