Lancet Commission in Global Surgery

Information Management Working Group

Progress Report

June 2014
Information is vital

To attract attention

To define & describe

To mobilise appropriate action & resources

To monitor progress
IM Working Group Scope

• Introduction to Information Management
  – Ideal Systems
  – Framework for Analyses

• Data Collection Methods and Components
  – Levels and Current Systems
    • Global
    • National
    • Facility or Community Based
  – Additional Tools
    • Health Information Systems
    • Coding
    • Registries and Programmatic Databases
  – Current Surgical Inclusion

• Metrics
  – Commission’s Proposed Metrics
  – Alignment with Current Global Health Goals
  – Recommended Methods and Components of Collection
  – Metric Use and Time Bound Targets

• Research
  – Current Picture
  – Recommendations
    • Future Research Agenda
    • Training
    • Ethics and Regulation
First working group meeting in Boston

Most members of the group have:
• Experience working with WHO
• Been involved with the development or use of metrics
• Hands-on experience providing care in the field in LMICs
Contributors *

All of the Commissioners
George Baison, Genevieve Bernard, Steve Bickler, Tiffany Chao, Mack Cheney, Damian Clarke, Aihnoa Costas, Paul Firth, Richard Gliklich, Alex Haynes, Meera Kotagal, Rebecca Maine, Eric Nagengast, John Rose, Carrie Teicher, David Watters, Tom Weiser, Leona Wilson

WHO (Meena Cherian)

World Bank (Tim Evans, Samuel Mills, Olivier Dupriez, Dean Jolliffe, Nicole Klingen, Neil Fantom, Talip Kalic, Adam Wagstaff, Melanie Walker)

USAID

CDC
Outline

• Metrics targets
• Data availability
• Information use
• Specific metrics
• Definitions
  – Emergency & essential surgery
  – Requirements for safe surgery
• Questions for Discussion
Our Goal:

Access to safe emergency and essential surgical care and anaesthesia when needed, with financial protection

Resolution for 68th World Health Assembly, May 2015

“Strengthening Emergency and Essential Surgical Care and Anaesthesia as a Component of Universal Health Coverage”

World Bank Goals for Health

1. By 2030, all populations, independent of household income, expenditure or wealth, place of residence or gender, have at least 80% essential health services coverage.

2. By 2030, everyone has 100% financial protection from out-of-pocket payments for health services.
Information is needed to monitor & guide:

- Improvements in Access
- Improvements in Safety & Quality
- Financial Protection
- Reduction in the Avertible Disease Burden
Available existing data

• Globally-collected Data
  – World Bank (eg WB Indicators, LSMS Household survey, UHC Indicators, etc)
  – WHO (Situational Analysis Tool, Service Availability & Readiness Assessment, etc)
  – UN (UN Population Fund)
  – GBD
• National Data
  – MoH Statistics
• Population-based Data
  – Household surveys
  – Verbal autopsies
• Facility-based Data
  – Infrastructure surveys
  – Health service activity
Who will use the information & how will it be used?

Surgical care & anesthesia

Surgical morbidity & mortality

Quality Cycle
Who will use the information & how will it be used?

- Surgical care & anesthesia
- Drivers & key stakeholders
- Surgical morbidity & mortality

Political Economy

Problem Definition

Quality Cycle

*Lancet 2008; “Sustainability science: an integrated approach to health programme planning”*
Drivers & Key Stakeholders

• International agencies
  – WHO, World Bank, aid & development agencies, etc
• Large scale global health funders
  – e.g. Gates Foundation
• Ministries of Health & Finance
• Local managers & service leaders
• Professional organisations
• Industry
• Clinicians & Patients
Proposed resolution to be considered by the 68th World Health Assembly in May 2015

“Strengthening Emergency and Essential Surgical Care and Anaesthesia as a Component of Universal Health Coverage”

The World Health Assembly (WHA) is the governing body of the WHO. It consists of every Minister of Health, or designees, from 193 Member States.

The WHA meets annually to
• Discuss health topics
• Set the WHO’s priorities
• Give suggestions to Member States

In some cases when debating actions to address important public health topics, the WHA will adopt a resolution. WHA resolutions are:

• Not binding for Member States, but they exert considerable influence
• The main form of guidance given by Member States to WHO
Equity Stratification

• wealth quintile
• place of residence
• gender
Keep in mind the surgical patient journey

- Patient recognition of problem
- Initial or primary care management
- Surgical consultation
- Definitive Treatment
- Follow-up & outcomes

Access

Quality & Safety

Cost
<table>
<thead>
<tr>
<th></th>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong></td>
<td>• Facility location &amp; readiness</td>
<td>• Procedure rates &amp; ratios</td>
<td>• Unmet need/avertible disease burden</td>
</tr>
<tr>
<td></td>
<td>• Workforce</td>
<td>• Times to definitive treatment</td>
<td></td>
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<tr>
<td><strong>Safety &amp; Quality</strong></td>
<td>• Requirements for Safe Surgery</td>
<td>• Requirements for Safe Surgery</td>
<td>• POMR</td>
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<tr>
<td></td>
<td>• Disease-specific measures</td>
<td></td>
<td>• Disease-specific</td>
</tr>
<tr>
<td><strong>Financial Protection</strong></td>
<td>• Insurance/Payment schemes</td>
<td>• Payment mechanisms</td>
<td>• Catastrophic expenditure &amp; impoverishment</td>
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<td></td>
<td></td>
<td></td>
<td>• Treatment avoidance</td>
</tr>
</tbody>
</table>
Proposed Global Surgery Metrics

1. Percent of population with access within 2 hours to a facility capable of safe emergency surgery
2. Emergency surgery performed within 24 hours
3. Trained providers per population
4. Procedure rate per population
5. Elective to emergency procedure ratio
6. Percent of district-level hospitals meeting requirements for safe surgery
7. Peri-Operative Mortality Rate
   1. On Discharge
   2. On Day of surgery
8. Percent of population falling into poverty or incurring catastrophic expenditure due to out-of-pocket healthcare expenditure *
9. Unmet need for surgical care
10. Inclusion of surgery within national or regional health plans

- National & International datasets
Loco-regional Surgical Metrics

• Disease-specific access, quality of care and outcome indicators

• Facility-based minimum datasets
Access

• To What?
• What measure of access?
## Emergency & essential surgical care as defined by the WHO Primary Surgical Package

**WHO/HPW/CPR 2004 - MONITORING AND EVALUATION TOOL FOR PROGRESS ON SURGICAL CARE HEALTH SYSTEMS**

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

courtesy Meena Cherian at WHO

• 1357 Facilities in 55 countries

• Performance of 3 “Bellwether Procedures” (emergency CS, laparotomy, treatment of open fracture) predicts other WHO primary care package procedures except Obstetric Fistula Repair, Club foot treatment, Neonatal surgery, and Cleft Lip repair
<table>
<thead>
<tr>
<th>Service</th>
<th>Score</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Fracture Repair</td>
<td>100</td>
<td>Acute burn management</td>
<td>93.23</td>
</tr>
<tr>
<td>Cesarean Section</td>
<td>100</td>
<td>Drainage of Osteomyelitis/Septic Arthritis</td>
<td>92.62</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>100</td>
<td>Biopsy</td>
<td>91.38</td>
</tr>
<tr>
<td>Hernia</td>
<td>99.69</td>
<td>Amputation</td>
<td>91.38</td>
</tr>
<tr>
<td>Suturing for wounds</td>
<td>99.38</td>
<td>Cystostomy</td>
<td>91.08</td>
</tr>
<tr>
<td>Dilatation &amp; Curettage</td>
<td>99.38</td>
<td>Tubal Ligation/Vasectomy</td>
<td>88.92</td>
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<tr>
<td>Wound debridement</td>
<td>99.08</td>
<td>Chest Tube Insertion</td>
<td>88.31</td>
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<tr>
<td>Appendectomy</td>
<td>99.08</td>
<td>General Anesthesia</td>
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<tr>
<td>Incision drainage of abscess</td>
<td>98.77</td>
<td>Urethral Stricture dilatation</td>
<td>81.54</td>
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<tr>
<td>Resuscitation</td>
<td>98.46</td>
<td>Regional anesthesia</td>
<td>76.62</td>
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<tr>
<td>Hydrocele</td>
<td>98.46</td>
<td>Contracture release/Skin grafting</td>
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<tr>
<td>Closed treatment of Fracture</td>
<td>97.85</td>
<td>Cricothyroidotomy/Tracheostomy</td>
<td>72.31</td>
</tr>
<tr>
<td>Ketamine IV anesthesia</td>
<td>96.31</td>
<td>Obstetric Fistula</td>
<td>67.08</td>
</tr>
<tr>
<td>Male circumcision</td>
<td>95.69</td>
<td>Clubfoot repair</td>
<td>59.08</td>
</tr>
<tr>
<td>Joint Dislocation treatment</td>
<td>94.15</td>
<td>Neonatal Surgery</td>
<td>57.85</td>
</tr>
<tr>
<td>Spinal anesthesia</td>
<td>93.54</td>
<td>Cataract Surgery</td>
<td>57.23</td>
</tr>
<tr>
<td>Removal of Foreign body</td>
<td>93.23</td>
<td>Cleft lip</td>
<td>51.38</td>
</tr>
</tbody>
</table>
Our Recommendations

• What access is needed to:
  – A facility where obstetric emergencies, acute abdomen, and open fracture can be managed
  – Within 2 hours *

• This will ensure access for emergency conditions and many common essential non-emergency conditions

• Non-emergency surgery for congenital deformities (eg cleft lip & palate), cataract, fistulae, burns contracture release should be available regularly at regional centres (local/visiting teams)*

• Improve training for district level treatment of club foot

• Population-based Facility & Workforce planning
WB Service Coverage Indicators for UHC

• *Access to emergency surgery* defined as “percent of the population with access within 2 hours of a facility capable of safe effective emergency surgery”

• *Safe surgical procedures*, defined as “procedures per population performed in accordance with the requirements for safe surgery”
Requirements for Safe Surgery

- Operating theatre standards
- Workforce
- Lists of infrastructure from ICRC, MSF etc

- *Can we usefully define standards for safe surgery?*
Requirements for Safe Surgery

1. A trained surgical provider
2. A trained anesthesia provider
3. Equipment & supplies for safe GA & loco-regional anaesthesia
4. Sterilization capability
5. Screened and cross-matched blood
6. Essential antibiotics & pain medicines (WHO Pain Ladder Drugs)
7. Staff protection (gloves, and the ability to test for HIV)
8. Postop nursing care, including recording of physiological observations
9. 24/7 surgical cover to review & respond to a deterioration of patient
10. Safe surgery checklist *
11. Audit of POMR *
12. Preoperative risk assessment and operation planning
Avertible Disease Burden
Using GBD data, courtesy Steve Bickler

Potentially avertible DALYs \(_{\text{GBD category}}\) = \((\text{Country level estimate of DALYs} \ _{\text{GBD category}} \times \text{fraction avertable by surgical care} \ _{\text{GBD category}}) - \text{Counterfactual rate} \ _{\text{GBD category}}\)

- Counterfactual rate = DALYs in a country (or collection of countries) which have full access to surgical care.
- To estimate the potentially avertable burden from scaling up emergency and essential surgical care one would sum the impact of surgical care on the different GBD categories
- Can also be used to estimate the number of preventable deaths, Years of Life Lost, and Years Lived with Disability.
Mozambique: DALYs Avertable by scaling up EESC at first level hospitals

- Interpersonal violence
- Unintentional injuries not classified
- Animal contact (non-venomous)
- Adverse effects of medical treatment
- Exposure to mechanical forces
- Fire, heat and hot substances
- Falls
- Other transport injury
- Road injury
- Gall bladder and bile duct disease
- Inguinal or femoral hernia
- Paralytic ileus and intestinal obstruction
- Appendicitis
- Neonatal encephalopathy (birth asphyxia
- Abortion
- Obstructed labor
- Maternal hemorrhage

Excess DALYs/100,000 population
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• National & International datasets
Issues for Panel discussion

• What do you think of our metrics? (for discussion)
• What do you think about the Requirements for Safe Surgery (debate & ratify)
• What do you think of our proposed World Bank Service coverage indicators for UHC? (debate and ratify)
• Do the 3 Bellwether conditions make sense? (discuss)
• Concept of access – timing v distance, and how to incorporate both delays in presentation, and delays in treatment within the system