“Global surgery is an area of study, research, practice, and advocacy that seeks to improve health outcomes and achieve health equity for all people who require surgical care, with a special emphasis on underserved populations and populations in crisis. It uses collaborative, cross-sectoral, and transnational approaches and is a synthesis of population-based strategies with individual surgical care.”

Overview

1. Surgery or the neglected stepchild of global health
2. Models of care: good, bad and unsustainable
3. A framework for progress
4. Observe, report and intervene
5. Take home points
1. The Neglected Stepchild of Global Health
33% OF WORLDWIDE DEATHS

16.9 MILLION LIVES LOST
2010 Worldwide Deaths (Millions) by Cause

- Surgical Conditions: 16.9 Million
- HIV/AIDS: 1.46 Million
- Tuberculosis: 1.20 Million
- Malaria: 1.19 Million
DALY = YLD + YLL

- YLD: Years lived with disability, illness or injury
- YLL: Years of life lost

Healthy life (Birth) + Death (R.I.P.)
77,200,000 DALYs PER YEAR
2. Models of Care: Good, Bad and Unsustainable
Capacity Draining → Capacity Building
3. A Framework for Progress
Referral system

Community:
- Informal healthcare providers and community health worker network, connected in broader health system

Primary health centre:
- Well connected to the first-level hospital through efficient communications and reliable referral

First level (District) hospital:
- Core site for surgical and anesthesia care delivery

Higher-level (e.g., secondary and tertiary) hospital:
- Hub for system-wide clinical, education, and research support

 Indicates flow of patients and information
<table>
<thead>
<tr>
<th>Definition</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to timely essential surgery</td>
<td>A minimum of 80% coverage of essential surgical and anaesthesia services per country by 2030</td>
</tr>
<tr>
<td>Specialist surgical workforce density</td>
<td>100% of countries with at least 20 surgical, anaesthetic, and obstetric physicians per 100,000 population by 2030</td>
</tr>
<tr>
<td>Surgical volume</td>
<td>80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume, a minimum of 5000 procedures per 100,000 population by 2030</td>
</tr>
<tr>
<td>Perioperative mortality</td>
<td>80% of countries by 2020 and 100% of countries by 2030 tracking perioperative mortality; in 2020, assess global data and set national targets for 2030</td>
</tr>
<tr>
<td>Protection against impoverishing expenditure</td>
<td>100% protection against impoverishment from out-of-pocket payments for surgical and anaesthesia care by 2030</td>
</tr>
<tr>
<td>Protection against catastrophic expenditure</td>
<td>100% protection against catastrophic expenditure from out-of-pocket payments for surgical and anaesthesia care by 2030</td>
</tr>
</tbody>
</table>

These indicators provide the most information when used and interpreted together; no single indicator provides an adequate representation of surgical and anaesthesia care when analysed independently.

Table 1: Core indicators for monitoring of universal access to safe, affordable surgical and anaesthesia care when needed
Dashboard using 6 core indicators

- Access to timely surgery
- Specialist density
- Surgical Volume
- Perioperative Mortality
- Impoverishing Expenditure
- Catastrophic Expenditure
4. Observe, Report and Intervene
GlobalSurg 1: Outcome of emergency abdominal surgery in high, middle and low income countries

Countries: 58 | Hospitals: 357 | Collaborators: 1532 | Patients: 10745

24 h mortality higher in LMICs

- LMIC: 1.1% (1.00)
- Med: 1.9% (2.36)
- Low: 3.1% (2.60)

30 d mortality higher in LMICs

- LMIC: 4.5% (1.00)
- Med: 6.0% (2.78)
- Low: 8.7% (2.97)

Checklist use associated with lower 30 d mortality

- High: 91.4% (0.62)
- Med: 55.9% (0.42)
- Low: 32.1% (0.92)

Adjusted odds ratio (95% CI)

GlobalSurg Collaborative, BJS 2016;103: 971–988 | globalsurg.org | @globalsurg
# Wound infection after gastrointestinal surgery worldwide

- **Countries:** 66  
- **Hospitals:** 343  
- **Collaborators:** 1815  
- **Patients:** 12,539

## Population

Countries grouped by human development index

<table>
<thead>
<tr>
<th>Country Group</th>
<th>Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>7,339</td>
<td>59%</td>
</tr>
<tr>
<td>Medium</td>
<td>3,918</td>
<td>31%</td>
</tr>
<tr>
<td>Low</td>
<td>1,282</td>
<td>10%</td>
</tr>
</tbody>
</table>

## Wound Infection

- More common in low-income countries

<table>
<thead>
<tr>
<th>Country Group</th>
<th>Infection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>9%</td>
</tr>
<tr>
<td>Medium</td>
<td>14%</td>
</tr>
<tr>
<td>Low</td>
<td>23%</td>
</tr>
</tbody>
</table>

- 9% of patients

## Drug-Resistant Bugs

- More common in low-income countries

<table>
<thead>
<tr>
<th>Country Group</th>
<th>Infection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>17%</td>
</tr>
<tr>
<td>Medium</td>
<td>20%</td>
</tr>
<tr>
<td>Low</td>
<td>36%</td>
</tr>
</tbody>
</table>

- 17% of patients with an infection and a result

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Explore the data with our interactive visualisation: ssi.globalsurge.org  
globalsurg.org  
@GlobalSurg
ESCP Safe Anastomosis Programme in Colorectal Surgery: International cluster-randomized sequence study of a quality improvement intervention to reduce anastomotic leaks following right hemicolecotomy.

Pragmatic Multi-Centre Factorial Randomized Trial testing measures to reduce surgical site infection in low and middle income countries.

Feasibility of a cluster-randomized trial of a nutritional intervention to improve the outcomes after cancer surgery in low-income countries.
5. Take Home Points
• Addressing the inequity in surgical care is fundamental to achieving global health goals.
• Models addressing global surgical need should aim to build capacity, not deplete resources.
• Institutions providing surgical care need to accessible and have the capacity to perform basic life-saving procedures in a safe and affordable manner.
• Research in global surgery must go beyond the descriptive.
• Innovative collaborations are paving the way for international crowdsourcing of clinical data in global surgery research, and interventional studies are coming down the pipeline.
Thank you!

Questions?

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@estlouismd