Global Surgical Care – Where Do We Fit In?

Global Health & Innovation Conference
New Haven, CT
April 22, 2017

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Discuss access to surgical care around the world
The Lancet Commission

Methods of implementation of increased/improved surgical care in the developing world

Link possible roles of US surgeons with this implementation

Discuss the short term trip, or “mission” trip model
Lancet Commission on Global Surgery

- Define the current global surgery landscape
- Review best practices
- Make recommendations
Lancet Commission on Global Surgery

Five key messages:

1. 5 billion people lack access to surgical care
2. 6% of the procedures performed per year are for the poorest 1/3 of the global population
3. 81 million people face catastrophic expenditures
4. Surgical care is economically beneficial
5. Surgical care is an “indivisible, indispensable part of health care” (Jim Kim)
Population without access to surgical care

Surgery in the Global Realm

- 313 million operations per year (up from 226 in 2004)
- Surgical care related to country wealth

<table>
<thead>
<tr>
<th>Per capita expenditure on health, USD</th>
<th>Number of countries</th>
<th>Number of operations in millions</th>
<th>Surgical rate per 100K population</th>
<th>% of global surgery</th>
<th>% of global population</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100</td>
<td>50</td>
<td>19.6</td>
<td>666</td>
<td>6.3</td>
<td>36.8</td>
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<tr>
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<td>54</td>
<td>72.2</td>
<td>3973</td>
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<tr>
<td>401-1000</td>
<td>46</td>
<td>34.1</td>
<td>4822</td>
<td>10.9</td>
<td>11.4</td>
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<tr>
<td>&gt;1000</td>
<td>44</td>
<td>187</td>
<td>11,168</td>
<td>59.8</td>
<td>17.7</td>
</tr>
<tr>
<td>Global total</td>
<td>194</td>
<td>312.9</td>
<td>4469</td>
<td>100</td>
<td>100</td>
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Weiser et al. (2016) Bull WHO 94:201-209F
Surgery in the Global Realm

What would it take to resolve these disparities?

The LCoGS recommended 5000 operations /100K population as minimal appropriate care

<table>
<thead>
<tr>
<th>Per capita expenditure on health, USD</th>
<th>Number of countries</th>
<th>Number of operations in millions</th>
<th>No. of operations in millions needed to achieve 5000/100K</th>
<th>% of ops globally if 5000/100K*</th>
<th>% of global population</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100</td>
<td>50</td>
<td>20 → 129</td>
<td>109</td>
<td>27%</td>
<td>36.8</td>
</tr>
<tr>
<td>101-400</td>
<td>54</td>
<td>72 → 120</td>
<td>47</td>
<td>25%</td>
<td>34.2</td>
</tr>
<tr>
<td>401-1000</td>
<td>46</td>
<td>34 → 40</td>
<td>6</td>
<td>8%</td>
<td>11.4</td>
</tr>
<tr>
<td>&gt;1000</td>
<td>44</td>
<td>187 → 187*</td>
<td>(-125)</td>
<td>39%</td>
<td>17.7</td>
</tr>
<tr>
<td>global total</td>
<td>194</td>
<td>0</td>
<td><strong>162</strong>*</td>
<td>1</td>
<td>100</td>
</tr>
</tbody>
</table>

*Left wealthiest country rate at 11,168, as we do not expect that to decrease as we work to increase rates elsewhere*
Surgical need: avertable DALYs

Burden of disease:

- Targeted by Global Fund for AIDS, TB, and Malaria:
  214 DALYs /year

- Ischemic heart disease (no. 1 ranking on GBD 2010 cause list):
  130 million DALYs/year

- **Unmet surgical need:**
  401 DALYs/year; 116 million “avertable”
Current state

The global *supply* side of surgical care:

<table>
<thead>
<tr>
<th></th>
<th>Number of physicians</th>
<th>% in LICs and LMICs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeons</td>
<td>1,112,727</td>
<td>19%</td>
</tr>
<tr>
<td>Anesthesiologists</td>
<td>550,134</td>
<td>15%</td>
</tr>
<tr>
<td>Obstetricians</td>
<td>456,093</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>2,118,954</td>
<td>20%</td>
</tr>
</tbody>
</table>

48% of the world’s population have 20% of the surgeons, anesthesiologists and obstetricians.

Global distribution of surgeons, anesthesiologists, and obstetricians

LMICs: 5.5 practitioners / 100K population
HICs: 56.9 / 100K

Meeting surgical needs

- “Home grown” human resources
  - Task shifting

- Foreign assistance
Assessing Surgical Capacity:

The WHO Situational Analysis Tool

Essential and Emergency Surgical Care


- Infrastructure
- Human Resources
- Interventions
- Capital outlays
- Renewable items
- Supplementary equipment
Assessing Surgical Capacity: PIPES

- Personnel
- Infrastructure
- Procedures
- Equipment
- Supplies

A modification/simplification of WHO Sit Analysis Tool
Assessing Surgical Capacity:

Ratio of C/S to total operations

- Proposed as an estimate of essential and emergency surgery capacity
- B/w 23% and 41% for LMICs
- Not yet truly validated, but intuitively appropriate
Pediatric anesthesia in developing countries: experience in the two main university hospitals of Benin in West Africa

EUGÈNE ZOUMENOU MD*, SÉRAPHIN GBENOU MD†, PAMPHILE ASSOUTO MD‡, ABOUDOUŁ-FATAOU OURO BANG’NA MAMAN MD§, THOMAS LOKOSSOU MD PHD*, GERVAIS HOUNNOU MD PHD¶, ABDOU RHAMAN AGUEMON MD PHD† AND MARTIN CHOBLI MD PHD‡

Abysmal in many parts of many LMICs
Surgical Platforms

• Short term trips ("missions")
• Self-contained medical/surgical programs
• Specialty hospitals

Surgical Platforms

Evaluate in terms of:

- Effectiveness
- Cost-effectiveness
- Sustainability and training

Subject to publication bias – many (most?) articles are variations of “look what I do”
Surgical Platforms

- Effectiveness
- Cost-effectiveness
- Sustainability and training

Found that *the more a program is bought in to the local community, the better the results in these three domains*

The fully integrated program

- Requires long term commitment by external participant
- Requires very committed, stable force in the country/location
- Requires economic commitment to prevent future brain drain

Dr. Agnes Binagwaho, Minister of Health, Rwanda
Surgical Platforms: The Short-term trip

When, where, and how can these trips be effective, appropriate means of improving global health?
The Short-term trip

- Why are they so popular?
- What can they accomplish?
- What can they not accomplish?
- Some concerns
- Some ethical concerns
- Benefits, or why they are not always a bad idea
- Example
The Short-term trip:
Why are they so popular?

- Answer an easily visible need
- Provide outlet for desire for volunteers to use their expertise
- Easy sell to donors
- Organization complicated, but very doable (esp. if cut a few corners here and there)
The Short-term trip:

Why are they so popular?

Benefits for the volunteer:

- Allows use of skills
- Feeling of accomplishment
- Personal education regarding developing countries, economics, development
- Develop global perspective
- Abundant opportunities available
The Short-term trip:

Why are they so popular?

Other “benefits” for the volunteer (the Dark Side):

- Home political power – selection of residents, nursing staff, etc.
- Home marketing value
The Short-term trip:

Why are they so popular?

Benefits for the host:

• Provide care for large number of pts
• Access to equipment and supplies
• Possible educational opportunity
• Relationships with HIC health care providers
• Local political or marketing benefits
The Short-term trip:

What can they accomplish?

- Needed operations for people that would not o/w have had access (????!)
- Some education - bilateral, but most often thought of for the host personnel
- Establish relationships
- All of the benefits noted for volunteers
- Importation of needed supplies and/or equipment
The Short-term trip:

What can they **not** accomplish?

- An actual plan for the long term improved care of the populace
- Formal training for the development of locally qualified surgeons/anesthesiologists
- Episode of care as is done in the US
The Short-term trip:

Some concerns

Short term team trips can:

- Interfere with local economic factors
- Interfere with local social and professional factors and patterns
- Interfere with other established programs that may be successful
The Short-term trip:

Some concerns

Short term team trips can result in:

- Loss of stature and income for local medical personnel
- Contribute to dependency on foreign assistance for care
The Short-term trip:

**Some concerns: Why else are these trips so popular?**

Other reasons Western groups get “invited”:

- Western groups implicitly invite themselves
  - Local host cannot say no for political reasons
  - Local host cannot say no for cultural reasons
  - Local host cannot say no for local market reasons

Continued -
Some concerns: Why else are these trips so popular? (Continued)

- Hope for financial/supply/equipment windfall
- Forced upon local practitioners by government or hosp administration –
  there often (usually?) is money involved here from the NGO to those officials; the NGO thinks the money is going for equipment, salaries, trip expenses, or whatever
The Short-term trip:

Some concerns: Quality studies

- QA usually a large aspect of large NGOs
  - Focused on acute event and short term
  - Efforts at longer term limited by f/u issues

- Longer term, rigorous, independent, objective evaluations: very few
The Short-term trip:

Some concerns – what others say

- “Self-serving”
- “Raising unmet expectations”
- “Ineffective”
- “Imposing burdens on local health facilities”
- “Inappropriate”
- “Medical Tourism - Short-term overseas work in poor countries by clinical people from rich countries” (Bezruchka cited by Suchdev)

Suchdev, Ambul Peds 2007
The Short-term trip:

**Some concerns**

- Dupuis 2004: “Humanitarian Missions: A Polite Dissent”
- Estimated $14 mil spent on “missions” in one country?! (Schwartz, 2007)
- “We know best what our health needs are, and if you truly want to help our country, then ask us what these needs are and how you can help.” --- Agnes Binagwaho, MoH, Rwanda
- Etc.
The Short-term trip:

Some ethical concerns

Related to the volunteer:

- Personal clinical experience?
  - “I learn so much”
  - “let’s try a few things” [!!]
  - “let’s train our residents [without liability]” [!!]

- Personal sociological experience?
  - “I learn so much about how people live”
  - “my kids need to understand real poverty” [!!]

- Throwing back some starfish?
  - “these kids deserve this chance from us – it is the best they will ever get” [!!]
The Short-term trip:

Some ethical concerns

Things you never want to hear (but do):

“I want to …

- “Get my residents some experience”
  [said by any physician]

- “Try this new idea for a procedure I have been thinking about”
  [said by surgeon]

- “Expose the medical students (or college, or nursing, etc.) to LMICs and whet their appetite for global health work”
  [said by any physician]

Continued -
The Short-term trip:

Some ethical concerns

Continued-

Things you never want to hear (but do):
“I want to …

- “Show my kids what it is like down there”
  [said by anyone with kids]
- “Help the Poor” (even though I have no usable skills for LMICs at this stage of my life)
  [said by student, donor, or interested bystander who got to go on the trip]
The Short-term trip:

Benefits, or why they are not always a bad idea

Relationships:
Can lead further educational opportunities
  - Develop local surgeons through formal training programs
  - Remake anesthesia
  - Hospital development
  - Residency program development
The Short-term trip:

Benefits, or why they are not always a bad idea

• Can increase the stature of local medical personnel
• Generate or facilitate more local support

Photo courtesy of Richard Gillerman, MD, PhD
The Short-term trip: Benefits, or why they are not always a bad idea

Access to equipment and supplies
The Short-term trip: Benefits, or why they are not always a bad idea

Provides care now for the individual who needs it

Most applicable to rural areas, countries with destroyed infrastructure, etc.
The Short-term trip:

Benefits, or why they are not always a bad idea

There are many places in the world where the short-term trip is indeed the best method to provide care – addressing the unmet global burden of surgical disease for the current generation.
It is up to us, the global health workers, to take the responsibility to steer and to help the more casual, but very capable and willing, participant in global health efforts into the best scenario for them to be optimally effective.

Thank You