(Pediatric) Surgery in Global Health
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What we’ll cover
• What are global health needs in general?
• What is surgery’s role in meeting these needs?
• The Lancet Report
• What are the pediatric surgery particulars?
  • Doctors without Borders experience
    – Pediatric surgery data from MSF
  • North Kivu, Democratic Republic of Congo

Global health needs
(a reductionist history)
• Salus Populi Suprema Lex
  • Early/mid 20th century
    – Discovery of vaccines, awareness of malnutrition, interplay of health and society
  • Mid/late 20th century
    – World Health Organization, ICRC
    – Médecins sans Frontières + other medical NGOs
  • Early 21st century
    – "Big picture" goals for reducing poverty/disease, improving well-being of people and planet

World Health Organization
• Formed in 1948
  • Malaria, tuberculosis, sexually transmitted diseases
  • Improvement prenatals/child health, nutrition, environmental hygiene
  • Compilation of accurate statistics on spread/morbidity of diseases
• 1965 – diabetes, cancer
• 1974 – cattle vaccines
• 1975 – tropical diseases
• 1976 – disability prevention, rehabilitation
• 1977 – essential medicines
• 1986 – global program against HIV/AIDS
• 1988 – eradication of polio

MDG 2015
World Health Organization

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- 1977 – essential medications
- 1986 – global program against HIV/AIDS
- 1993 – eradication of smallpox
- 2005 – Global Initiative for Emergency and Essential Surgical Care

68th World Health Assembly

SIXTY EIGHTH WORLD HEALTH ASSEMBLY

WHA68.15

Agenda Item 17.1

26 May 2015

Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage

Challenges to surgical care

- Injuries, violence, disasters
- Pregnancy-related complications
- Congenital anomalies
- Infection
- Other surgical conditions
- Diabetic complications
- Cancer

Disease Control Project

- 1990s – increasing awareness of cost-effectiveness and efficacy of surgery
- 1993 – chapter on cataract surgery
- 2006 – chapter on surgery (global burden, cost savings)
- 2015 – entire volume

- 5 million deaths/year from injuries
- 270,000 deaths/year from complications of pregnancy
DCP 3

- 1.5 million (6-7%) deaths in LMIC could be averted
- Essential surgical procedures among most cost-effective health interventions
- Task-sharing safe and effective
- Substantial disparities remain in safety of surgical care (safe anesthesia)
- Ample evidence to make essential surgery a part of universal health coverage

Where does surgery fit in???

“Surgery is an indivisible, indispensable part of health care.”

“I urge you to challenge this injustice and to build a shared vision and strategy for global equity in essential surgical care.”

– Jim Kim, World Bank President, 2014

Lancet Commission

- 2014, multidisciplinary team, 110 countries
- Working groups
  - Health-care delivery and management
  - Workforce, training, education
  - Economics and finance
  - Information management

Lancet Commission key messages

- 5 billion lack access to safe, affordable surgical and anesthesia care
- 313 million procedures undertaken worldwide each year, only 6% occur in the poorest countries (~1/3rd of population)
- 33 + 48 million individuals face catastrophic health expenditure due to payment for surgery and anesthesia care each year
- Investing in surgical services in LMICs is affordable, saves lives, and promotes economic growth
- Surgery is an “indivisible, indispensable part of health care”

<table>
<thead>
<tr>
<th>Population (millions)</th>
<th>Proportion of surgical cases</th>
<th>Proportion of anesthesia cases</th>
<th>Proportion of surgical and anesthesia cases</th>
<th>Proportion of clinic and emergency cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000,000</td>
<td>10%</td>
<td>5%</td>
<td>15%</td>
<td>0%</td>
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<tr>
<td>500,000</td>
<td>5%</td>
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<td>0.025%</td>
<td>0.075%</td>
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<td>1,000</td>
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<td>0.005%</td>
<td>0.0075%</td>
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O’Meara, Lancet, 2015

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What is needed for safe surgical/anesthetic care?

- Trained surgical provider
- Trained anesthesia provider
- Infrastructure, equipment, supplies
- Decontamination, sterilization
- Blood supply
- Drugs
- Nursing care
- 24 hour surgical coverage
- Quality-improvement processes
- Risk-assessment and operation planning

Must, should, can

<table>
<thead>
<tr>
<th>Must do</th>
<th>Should do</th>
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<tbody>
<tr>
<td>Acute high-volume procedures for planned surgery at the first-level hospital:</td>
<td>High-priority, high-volume procedures for emergency surgery at tertiary centers include:</td>
</tr>
<tr>
<td>• Wound repair</td>
<td>• Wound repair</td>
</tr>
<tr>
<td>• Cesarean delivery</td>
<td>• Cesarean delivery</td>
</tr>
<tr>
<td>• Treatment of open fractures</td>
<td>• Treatment of open fractures</td>
</tr>
<tr>
<td>Lower complex, urgent procedures include:</td>
<td>Lower complex, urgent procedures include:</td>
</tr>
<tr>
<td>• Trauma and burn injuries</td>
<td>• Trauma and burn injuries</td>
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<tr>
<td>• Closed fracture reductions</td>
<td>• Closed fracture reductions</td>
</tr>
</tbody>
</table>

Terms:
- Important procedures: potentially needing specialist support; ideally, higher-risk procedures should be done at tertiary centers, so care at lower-level hospitals with this assistance of visiting or supporting specialist teams.
- Examples include:
  - Thoracic surgery
  - Transcervical repair of esophageal perforation
  - Colorectal surgery
  - Invasive endoscopy
  - Bone, skin, and soft-tissue surgery
  - Cardiac surgery
  - Destination repair
The pediatric surgery particulars

- Neglected of the neglected...

Congenital
Injury
Burns
Other

Surgical conditions
Surgical care
Surgical sequelae

Untrained – DALYs
Trained – M&M

Data collection

- Household surveys
- National registries
- Global estimates
- Hospital survey toolkits
- National registries
- DALYs
- Literature review

LMIC pediatric surgical needs

- Pediatric surgical capacity in West Africa
  - Lacking personnel, ICU care, supplies...
- Mortality of pediatric surgical conditions
  - EA 78%
  - Volvulus 36%
  - Jejunoileal atresia 35%
  - Congenital overall 17%
  - Overall 12%
- Nepal
  - ~700,000 children with unmet needs
Care improvement on the ground:

- Local capacity building
- Task-sharing
- Twinning (academic) partnerships
- NGO
- Mission trips

Care improvement research priorities:

- Disease epidemiology, prevalence, incidence
- Pediatric surgical capacity
- Optimized quantitative metrics of disease burden
- Integration of pediatric surgical services into existing child health initiatives
- Cost-effectiveness data
- Aligning marketing and advocacy

Doctors without Borders
Surgical care of pediatric patients in the humanitarian setting

North Kivu, DRC

- ~6 million population
- 100,000s IDP/refugees
- Nexus of conflict zones...

- Pediatric Surgeons – 0
- Pediatric Anesthesiologists – 0

What to do...

- Needs assessment
  - Burden of disease
  - Available medical infrastructure
  - Political environment (future?)
- Government buy-in
- NGO support?
- Bidirectional partnerships
Future research considerations

- Appropriateness
- Ownership
- Authorship
- Local capacity building
- Consent
- Treating identified conditions
- Quality

Summary

- Unmet need for essential surgical care
- Solution is in multidisciplinary approaches
  - MOH + WHO + Public Health + MD + Economists + Professional societies + Funding Agencies + NGOs
- Coordinated efforts
  - Advocacy, Research, Training, Appropriate Technologies
- Not just capacity... Quality