Surgical Mesh should be available for inguinal hernia repair in Low and Middle Income Countries

Presenter: Stephen Tabiri

1 University for Development Studies-School of Medicine and Health Sciences
2 University of Utah Center for Global Surgery
3 Holy Family Hospital
Declaration

• Nothing to disclose

~ 5 billion
**DALY**

Disability Adjusted Life Years is a measure of overall disease burden, expressed as the cumulative number of years lost due to ill-health, disability or early death.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Cost per DALY averted (in $US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inguinal hernia repair (Ghana)</td>
<td>$14.66</td>
</tr>
<tr>
<td>Cataract surgery</td>
<td>$50</td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td>$10</td>
</tr>
<tr>
<td>Oral rehydration solution</td>
<td>$1000</td>
</tr>
<tr>
<td>Antiretroviral therapy for HIV/AIDS</td>
<td>$900</td>
</tr>
<tr>
<td>Insecticide treated bednets</td>
<td>$29</td>
</tr>
</tbody>
</table>

Shillcut et al., Cost-effectiveness of groin hernia surgery in the Western Region of Ghana. *Archives of Surgery* 2010; 145: 954.

Traditional methods and results

• **Purpose**: assess the current state of inguinal hernia repair in northern Ghana. Specific focus on use of *mesh*

• **Methods**: 2013-2017, operative reports from 23 hospitals in northern Ghana. All males 18 and older

• **Analysis**: multivariate logistic regression to determine predictors of mesh
RESULTS

- 23 hospitals, 2013-17
- 4523 hernia repairs
  - District 70%
  - Regional 35%
  - Teaching 3%

- Non-surgeon physicians 68%
- Surgeon 32%

- Suture repair 94%
- Mesh repair 6%
RESULTS

• **Predictors of mesh use:**
  -- **Teaching hospital** (OR 7.94, p = 0.001)
  -- **Surgeon** (OR 4.54, p = 0.001)
  – **Regional hospital** (OR 0.22, p = 0.000)
  – **Emergent surgery** (OR 0.56, p = 0.047)

• **Barriers to mesh use:**
  – **High cost** (59%, 10/17)
  – **Unavailable** (41%, 7/17)
  – **Training** (0%, 0/17)
SUMMARY

- In northern Ghana, hernia repairs primarily occur:
  - District hospitals (70%)
  - Non-surgeon physicians (68%)
  - Without mesh (94%)

- Predictors of mesh use:
  - Positive: teaching hospitals, surgeons
  - Negative: regional hospitals, emergent cases

- Recommendation: Focus interventions to increase availability of mesh in district/regional hospitals
Mosquito nets

- Sterilization at 121°C
- Reduce surface area by 40%
- Loss of macroporous structure turns net into hard, shrunken, non-pliable mass
- Maximum abdominal pressure is higher than the tensile strength and tear force of these nets
- Lack of registration for medical usage
- These nets should NOT be used???

What is global surgery?

• “A field that aims to improve health and health equity for all who are affected by surgical conditions or have a need for surgical care, with a particular focus on underserved populations in countries of all income levels, as well as populations in crisis, such as those experiencing conflict, displacement, and disaster.”
Medical mesh

• Initial problem was the cost and availability
• Ghana Hernia Society, stakeholders and collaboration BARD
• The medical mesh is currently available slightly less than 10 USD Ghana
• Further reduction is possible with the support of surgeons in HICs
AIM OF GLOBAL SURGERY

EQUALITY

EQUITY

NOT FATHER CHRISTMAS
Thank You!

• Stephen Tabiri

• Further questions?
  – stabiri@uds.edu.gh OR
  – kstephenba14@gmail.com
  – WhatsApp: +233-201691005