A Cost-Analysis of Pediatric Cataract Surgery at Two Child Eye Health Tertiary Facilities in Africa

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**Background**
- Blindness due to congenital or childhood cataracts is an enormous problem to the developing world in terms of human morbidity, economic loss, and social burden.
- While many studies have illustrated the cost of cataract surgery in adults, few studies have evaluated the costs of pediatric cataract surgery.
- Costing data is essential to the continued budgeting and planning for expansion of healthcare to more underserved areas of Africa.

**Methods**
- At two separate Child Eye Health Tertiary Facilities in Africa, data was collected on the direct costs of pediatric cataract surgeries.
- The direct costs included the following: disposable equipment during surgeries and post-operative care, non-disposable equipment during surgeries and post-operative care, anesthesia equipment, equipment maintenance costs, facility utility costs, personnel costs, and medications.
- After appropriate consent and approval was obtained, financial records were reviewed and data was obtained for analysis.
- Researchers conducted interviews with staff and locals to further understand the issues surrounding pediatric eye care.

**Initial Findings**
- Resources were very limited; the majority of equipment, consumables and medications were donated. Many consumables meant for one time use only were reused multiple times.
- Over 90% of patients admitted to the hospital were unable to pay for services rendered.
- Citizens of both countries relied on frequent “outreaches” to receive pediatric eye care. Each of the two countries was served by only 1-2 pediatric trained ophthalmologists.

**Expected Outcomes**

<table>
<thead>
<tr>
<th>Cost</th>
<th>Units</th>
<th>Malawi</th>
<th>Zambia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>one time cost</td>
<td>$217,376.19</td>
<td>$215,709.99</td>
</tr>
<tr>
<td>Annual cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumables</td>
<td>per child</td>
<td>$77.83</td>
<td>$436.54</td>
</tr>
<tr>
<td>Medication</td>
<td>per child</td>
<td>$7.44</td>
<td>$20.82</td>
</tr>
<tr>
<td>Personnel</td>
<td>year</td>
<td>$85,881.60</td>
<td>$104,217.76</td>
</tr>
<tr>
<td>Outreach</td>
<td>year</td>
<td>$342.83</td>
<td>$1,646.00</td>
</tr>
<tr>
<td>Utility</td>
<td>year</td>
<td>$2,166.92</td>
<td>$8,323.09</td>
</tr>
<tr>
<td>Volume</td>
<td>year</td>
<td>$90.00</td>
<td>$120.00</td>
</tr>
<tr>
<td>Total annual cost</td>
<td></td>
<td>$96,065.08</td>
<td>$169,069.99</td>
</tr>
<tr>
<td>Operation cost over 10 years</td>
<td></td>
<td>$960,650.82</td>
<td>$1,690,699.92</td>
</tr>
<tr>
<td>Cost/child</td>
<td></td>
<td>$1,308.92</td>
<td>$1,588.67</td>
</tr>
</tbody>
</table>

**Next Step**
- Continue detailed analysis of costing data
- Continued collaboration with project partners in Africa to promote pediatric cataract awareness and expansion of healthcare through impact-oriented research

**Project Partners**
- Dr. Phoebe Lenhart, Emory University School of Medicine
- Dr. Zhou Yang Rollins School of Public Health
- Dr. Asiome Seneadza and Dr. Chileshe Mboni, Kitwe Central Hospital Eye Ward
- Dr. Gerald Msukwa, Lions Sight First Eye Clinic
- Dr. Paul Courtright, Dr. Susan Lewallen, Kilimanjaro Centre for Community Ophthalmology
- Emory Global Health Institute

**Goals**
- Utilize a multidisciplinary team to perform a cost analysis of pediatric cataract surgery at two child eye health tertiary facilities in Africa
- Create a communication strategy regarding childhood cataract in Africa in order to raise awareness of the issues surrounding pediatric eye care in developing nations including access to care and cost as a barrier to receiving care
- Provide insight into methods of promoting organizational and financial sustainability for child eye health tertiary facilities in Africa
- Develop a costing methodology useful for similar studies in other settings