
Sustainable Vision and Eye Care for Rural Malawi

Collaboration between:
International Eye Foundation, Eyes for Africa, Penya Optical, QECH Blantyre Lions Eye Unit

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Project area, services, infrastructure

- Southern region pop 5.3 million, rural, poor
- Blantyre district 809,397 (46% <15 yrs)
- High blindness rate (.8-1%)
- Little data on RE and demand for spectacles
- QECH/BLEU referral hospital
  (3 ophthalmologists; OPD 25,000; 800 surgery)
- Penya Optical: a social enterprise
  (1 qualified optometrist in public sector;
  6,000 exams/refractions per year)
  $14,000/year to hospital sustainability fund
Summary of project approach

QUESTIONS

- What is the need/demand for spectacles in schools; in rural areas?
- Can strategies to meet children’s needs be integrated into adult services? Advantage and disadvantages?
- Are people willing and able to pay for spectacles? Are the costs to provide optical services sustainable?
- How to leverage capacity of Penya Optical to train “refractionists” and serve rural population?
Summary of project approach

OBJECTIVES

- Train 4 new refractionists (1 yr)
- Screen 40 primary schools (changed to 65 secondary schools)
- Screen at 27 outreach events (changed to 65) for general population at health centers, trading centers, estates
- Follow up 30 children who received cataract surgery
- Training in behavior communication methods
Progress toward objectives (18 mons)

- 4 refractionists trained (3 Malawi, 1 Zambia)
- 65 (100%) gov’t secondary day schools
  - 11,659 students (24% <15 yrs) screened
  - 625 teachers screened
- 65 outreach days at 39 locations in 4 districts
  - 3,823 screened
  - 1,240 refracted
  - 1,179 spectacles
- Follow up on 15 children who received cataract surgery
Results – 11,659 students screened

- 310 (2.7%) identified with a visual problem
- 240 (2%) found with visual acuity 6/12 or worse
- 139 (60%) refracted, 109 (78%) prescribed spectacles, 75 (69%) students received spectacles free
- 624 received simple treatment
- 45 students referred to clinic
Results – 625 teachers screened

- 429 (69%) with a visual problem
- 150 received a pair of spectacles
- 76% presbyopia, 21% myopia
- Grateful for pair of made to order spectacles; often first pair or replaced an older pair of used/free spectacles
- Majority willing to pay $3 for new spectacles
Results – 3,823 community patients

- 48% female; 10% (392) children <15 yrs of age
- 43% (1,641/3,823) with a visual problem
- 76% (1,240/1,641) refracted
- 87% (1,079/1,240) willing to pay $3/pair
- 86% presbyopia
- 22% (855) treated

Referrals: 5% refraction, 12% treatment, 15% surgery (419 cataract and 150 other surgery)
Community patients – visual acuity

![Bar chart showing visual acuity distribution by age group and visual acuity levels.](chart.png)
# Results – Community patients rec’d spectacles by age & condition

<table>
<thead>
<tr>
<th>Age</th>
<th>Nearsighted Myopia</th>
<th>Farsighted Hyperopia</th>
<th>Reading Presbyopia</th>
<th>M &amp; Presbyopia</th>
<th>Sub total</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>0-14</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>15-19</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20-29</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>30-39</td>
<td>12</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>40-49</td>
<td>6</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>210</td>
<td>212</td>
</tr>
<tr>
<td>50-59</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>228</td>
<td>138</td>
</tr>
<tr>
<td>60-69</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>74</td>
<td>38</td>
</tr>
<tr>
<td>70 &gt;</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>46</td>
<td>6</td>
<td>13</td>
<td>581</td>
<td>432</td>
</tr>
</tbody>
</table>
## Results - Cost & Sustainability

<table>
<thead>
<tr>
<th>Cost Analysis</th>
<th>Outreach</th>
<th>Revised</th>
<th>School</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure avg.</td>
<td>$537</td>
<td>$158</td>
<td>$485</td>
<td>$89</td>
</tr>
<tr>
<td>Revenue avg.</td>
<td>$52</td>
<td>$78</td>
<td>$12</td>
<td>$27</td>
</tr>
<tr>
<td>No. persons screened</td>
<td>59</td>
<td>59</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td>No. refracted</td>
<td>34</td>
<td>34</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>No. specs. disp.</td>
<td>18</td>
<td>18</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>No. treated</td>
<td>13</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. cataract identified</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost recovery R/E</td>
<td>10%</td>
<td>49%</td>
<td>2%</td>
<td>30%</td>
</tr>
<tr>
<td>Cost per person screened</td>
<td>$9</td>
<td>$3</td>
<td>$3</td>
<td>$0.5</td>
</tr>
<tr>
<td>Cost per refraction</td>
<td>$16</td>
<td>$5</td>
<td>$81</td>
<td>$15</td>
</tr>
<tr>
<td>Cost per spec. dispensed</td>
<td>$30</td>
<td>$9</td>
<td>$81</td>
<td>$15</td>
</tr>
<tr>
<td>Cost per persons treated</td>
<td>$41</td>
<td>$12</td>
<td>$81</td>
<td>$15</td>
</tr>
<tr>
<td>Cost per cataract identified</td>
<td>$90</td>
<td>$26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

67% to 80% salaries/ per diem
Challenges

- Manpower - many demands (competition for) optometrists/ refractionists for clinic, training, and outreach
- Poor economic conditions/ family priorities/ Low level of knowledge about RE and role of spectacles
- Strengthen coordination and referral system on all levels
- Reduce cost of outreach, increase screening output and price to reduce unit cost
- Pediatric surgery capacity/ infrastructure not in place
Conclusions, lessons learned

- Refractionists - intensive training under supervision with practice; dedicated positions

- Schools – low demand; screening a priority when RE <2% (less in primary)? Teachers need eye care; high cost; comprehensive school health program?

- Community – low/moderate demand; few children; new prescription vs. donated free; majority will pay if on-site refraction and spectacles; integration opportunities (419 cataract); CR<50%

- Surgery follow up – late presentation = poor results; comprehensive services prerequisite
Thank you for the opportunity to provide refractive and optical services to children and families and to share our experience with you.