Developing Primary Eye Care In Rural Pakistan

Sajjad Haider

This presentation was given in Barcelona in 2009 but has since been modified to accommodate MMH contribution to primary eye care in Chakwal / Pakistan since
Primary Eye Care (PEC)

Definition: a frontline activity, identifying disease before it becomes a serious medical issue and providing care

Primary eye care can be delivered in many different ways.
• eye health education
• symptom identification
• visual acuity measurement / Refractions
• basic eye examination
• diagnosis
• timely referral

(8th General Assembly of IAPB. Course 1: Primary eye care - Chad McArthur, Ronnie Graham, Boateng Wiafe, Susan Lewallen, Juan Carlos Silva - Community Eye Health J 2009;22(69): 10-11)
Primary care describes community based health services that are *usually the first, and often the only, point of contact that patients make with the health service*. It covers services provided by family doctors (GPs), community and practice nurses, community therapists (such as physiotherapists and occupational therapists), community pharmacists, *optometrists*, dentists and midwives.
PEC Models - UK

- Optometrists
- Ophthalmic A & E
- PEC (outreach) centres run by foundation trusts
- GP’s
VISION 2020: The Right to Sight

This is a global initiative of the World Health Organization to put together a coalition of:

- Non-Governmental Organisations (NGOs)
- Professional associations
- Eye care institutions

With an aim to eliminate avoidable blindness worldwide by the year 2020, in order to give everyone in the world the Right to Sight.
Chakwal

- A moderate sized underserved district - 6524 Sq. Kilometre in north of Punjab – Pakistan, 100 Km south of the capital - Islamabad
- 1.08 million population (1998), could be 1.5 million now
- 38% living below the poverty line

VISION 2020: The Right to Sight
Global initiative of the World Health Organization

- Munawwar Memorial Hospital
- Opened on fulltime basis end 1999
- Not for profit facility
- “Safe, Quality and cost effective eye care for all”
Munawwar Foundation

- Munawwar Foundation Islamabad is a tax exempt charity registered in Islamabad under Section 2(36), reference CIT (C)/J Br/App-88/2750 with National Tax Number - 2772131-7
  - Education and
  - Health
  - at district level
RACSS - 2000
RACSS – Observations/ Recommendations

- The prevalence of bilateral cataract with VA < 6/60 in > 50 years was 5.1% - an estimated total of 8833 unoperated persons.

- The number of cataract surgeries per year should be increased to 2500 per year.

- 36% of those operated without IOL could not see 6/60. Increase the number of IOL surgeries.
Cataract blindness in Chakwal District, Pakistan: Results of a survey

Sajjad Haider, FRCS¹
Arif Hussain, DOMS¹
Hans Limburg, MD PhD²

¹Munawwar Memorial Hospital, Chakwal, Pakistan and
²International Centre for Eye Health, London School of
Hygiene and Tropical Medicine, London, UK
RACSS - Observations/ Recommendations

79% females among bilaterally blind

Cataract surgical coverage

- Males 92%
- Females 73%
Strategies

Females have to be given priority, in such a programme through preferential treatment

- Resident facility
- Family friendly schedule, Open on weekends, day case surgery
- Cost reduction through priority subsidy
- Free transport
- Advocacy by female health care workers - PEC
## Gender & Cataract surgical service

<table>
<thead>
<tr>
<th>Year</th>
<th>F</th>
<th>%</th>
<th>M</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>241</td>
<td>55.28%</td>
<td>195</td>
<td>44.72%</td>
<td>436</td>
</tr>
<tr>
<td>2001</td>
<td>258</td>
<td>53.20%</td>
<td>228</td>
<td>47.01%</td>
<td>485</td>
</tr>
<tr>
<td>2002</td>
<td>454</td>
<td>63.30%</td>
<td>263</td>
<td>36.70%</td>
<td>717</td>
</tr>
<tr>
<td>2003</td>
<td>648</td>
<td>56.30%</td>
<td>503</td>
<td>43.70%</td>
<td>1151</td>
</tr>
<tr>
<td>2004</td>
<td>561</td>
<td>56.10%</td>
<td>439</td>
<td>43.90%</td>
<td>1000</td>
</tr>
<tr>
<td>2005</td>
<td>498</td>
<td>62.20%</td>
<td>303</td>
<td>37.80%</td>
<td>801</td>
</tr>
<tr>
<td>2006</td>
<td>506</td>
<td>62.00%</td>
<td>310</td>
<td>38.00%</td>
<td>816</td>
</tr>
<tr>
<td>2007</td>
<td>550</td>
<td>62.01%</td>
<td>337</td>
<td>37.99%</td>
<td>887</td>
</tr>
<tr>
<td>2008</td>
<td>463</td>
<td>59.66%</td>
<td>313</td>
<td>40.34%</td>
<td>776</td>
</tr>
<tr>
<td>2009</td>
<td>410</td>
<td>59.16%</td>
<td>283</td>
<td>40.84%</td>
<td>693</td>
</tr>
<tr>
<td>Total</td>
<td>3166</td>
<td>54.06%</td>
<td>2241</td>
<td>45.94%</td>
<td>5406</td>
</tr>
</tbody>
</table>

### Problem identified

In 2000 a survey of cataract blindness in our district showed that an estimated 3,095 people were bilaterally blind due to cataract, 1,647 males and 1,448 females (70%). The cataract surgical coverage for persons at VA<6/60 was 90% for males and 74% for females, a significant difference. At the <6/60 and <6/18 level the differences were not significant (Haider S, Hussain A, Limburg H. Ophthalmic Epidemiology. 2003, Vol.10, No.4, pp. 249-258. [http://www.scp.wets.at/sgp/journals/sgp104249.htm](http://www.scp.wets.at/sgp/journals/sgp104249.htm)).

### Action taken

It was not possible to provide an exclusive service to females, but we examined barriers specific to women and took a series of measures to raise awareness, improve detection, streamline referrals, improve access, reduce costs, and to make the programme more friendly to the patients’ family members.

### Exchange

The following were put in place:

- A resident facility so the family can reach home for the evening
- Day care surgery to reduce effort and indirect costs
- Service over the weekends, when a younger family member may more easily accompany the elderly female patients
- Cost reduction through subsidy
- Transport to reduce indirect costs and improve access
- 1,650 Primary Health Care workers within this district were trained in Primary Eye Care, including detection and referral of the female blind.

### Outcome

Community detection of cataracts improved from 160 cataract patients identified at community level in 2001, to 463 identified in 2003. We were also able to increase the acceptance of surgery considerably in the four years. The rate of cataract surgery in females has remained consistently higher than males. The volume of cataract surgery has doubled but the male/female distribution remains roughly the same. Increasing the coverage in females with bilateral cataract may require more focused interventions.
PEC Models - Pakistan

• Eye Camps
• Private GP’s, Ophthalmologists
• Eye Departments
• Rural family health system run by community health workers

Does it deliver????
Linkages

- Refractionists in Leprosy Control Programme
- Optometry students in NRSP communities
- Community Health Workers in voluntary sector, led by optometrists
- Lady Health Workers in public sector
Save your sight campaign (optometry students) - NRSP

Literate version

Illiterate Version

(University of Leeds)
Village focus – Expatriate community from Chakwal with NRSP delivered (optometry students) for their villages

Emphasis on sustainable PEC

- Jhamra - Malik Mulazim from Glasgow
- Laitti Tala Gang - Fateh Malik - Friends of Chakwal Welfare Society Birmingham
- Sang - Samina khan and Anjum Khan – Cardiff
- Takal - Tariq Bhatti – Bhatti Welfare Foundation Glasgow
“Strengthening Primary Eye Care (PEC) Services in District Chakwal” - 2004 to 2006
Sight Savers International and Munawwar Foundation

- To provide initial, refresher and feedback training in PEC to 1200 Primary Health Care (PHC) workers

- Training and motivation for detection and referral system use through feedback and counselling

- Strengthen networking and add eye care as essential component of integrated development

And thus improve capacity and utilisation
Outcomes

- 815 PEC workers provided initial training and 2033 refreshers

- LHWs expressed their satisfaction and LHWs identified a need for refresher training at least once each year

- Development of the referral and feedback system has improved skill levels of LHWs and increased volume and quality of referrals

- LHWs felt empowered in that people now listen to them and go to the health facilities for further care when recommended.
Exploring the potential of PEC Workers

Prevalence of non-vision-impairing conditions in a village in Chakwal district, Punjab, Pakistan

Arif Hussain¹
Haroon Awan²
Prof. Mohammed Daud Khan³

¹Munawwar Memorial Hospital, Chakwal, ²Sight Savers International, Islamabad, and ³Khyber Institute of Ophthalmic Medical Sciences, Hayatabad Medical Complex, Peshawar, Pakistan
Human Resource development - Some success stories

- Dr Arif Hussain
  - Dr Arif Hussain completed MSC training in Community Eye Health successfully in Pakistan Institute of Community Ophthalmology University of Peshawar during 2002-04. He served community Ophthalmology in MMH for 5 years before taking up a responsible role in an apex body, in a center of excellence in Lahore..
- Asim Raza
  - Asim Reza completed his MBA Finance from Virtual University of Pakistan Lahore.
- Saba Yasmeen
  - Saba Yasmeen completed her Ophthalmic Technician Course Including Operation Theater Assistant (OTA) Training.
- Optometry
  - Khuram Shahzad MMH team leader
  - Nasir Ameer Sheikh Khalifa Hospital UAE
  - Nasir iqbal Canada
  - Rabbia Ammer M-Phil Scholar Faisalabad
  - Kaukab Khan  Hussain Natt Hospital Islamabad
  - Safia Hussain Natt Hospital Islamabad
  - Mohammad Shahid D-Watson Islamabad
  - Ayesha Kanwal D-Watson Islamabad
  - Yasir Arafat UAE
  - Shah Fahad Trust Hospital Azad Kashmir
  - Mehwish Nisar Bilal Eye Hospital talagang
  - Nida Zafar Amer Eye Hospital Chakwal
  - Maria Qayyum REDO Rawalpindi
  - So 1, 11 and 12 have decided to stay within the area.
## Evaluation Methodology – ESCRS Barcelona 2009

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Programme 1</th>
<th>Programme 2</th>
<th>Programme 3</th>
<th>Programme 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emphasis</strong></td>
<td>Primary Health Care (PHC) in leprosy effected communities</td>
<td>Poverty alleviation through Micro credit, capacity building &amp; resource generation</td>
<td>Primary Health Care in specific communities</td>
<td>Integration of Primary Eye Care (PEC) into PHC in the district – Capacity building of the district PHC system</td>
</tr>
<tr>
<td><strong>PEC Workers</strong></td>
<td>Refractionist</td>
<td>Optometry students</td>
<td>Community Health Workers (CHW), led by optometrists</td>
<td>Lady Health Workers (LHW)</td>
</tr>
<tr>
<td><strong>Population served</strong></td>
<td>65,000</td>
<td>160,000</td>
<td>60,000</td>
<td>1,100,000</td>
</tr>
<tr>
<td><strong>Subsidy for cataract surgery</strong></td>
<td>50%</td>
<td>50%</td>
<td>70%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Table 1 summarises the characteristics of each of the 4 programmes - This evaluation was carried out to inform a clinical and cost effective future model of PEC for the area.
## Results: Clinical effectiveness

<table>
<thead>
<tr>
<th>Programmes</th>
<th>Total screened</th>
<th>Cataracts operated</th>
<th>Positive Predictive value of screening</th>
<th>Cataract blind detected in the community</th>
<th>% operated</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>124</td>
<td>123</td>
<td>99.20%</td>
<td>530</td>
<td>23.22%</td>
</tr>
<tr>
<td>P2</td>
<td>132</td>
<td>127</td>
<td>96.20%</td>
<td>1304</td>
<td>9.74%</td>
</tr>
<tr>
<td>P3</td>
<td>49</td>
<td>49</td>
<td>100%</td>
<td>489</td>
<td>10.02%</td>
</tr>
<tr>
<td>P4</td>
<td>57</td>
<td>55</td>
<td>96.50%</td>
<td>8833</td>
<td>0.61%</td>
</tr>
</tbody>
</table>

Table 2 shows the programme effectiveness and quality of screening (Positive Predictive value = Disease / Total)
## Results: Cost effectiveness

Table 4 shows the comparison of the costs per case operated in each programme.
Conclusions

• Programme 1 (Refractionist led) has been the most clinical and cost effective. This is due to a combination of factors including small size of the community served, higher subsidy with consequent lower direct cost to the patient, and more frequent follow up visits by the refractionists.

• P4 had the highest coverage, and was ideally placed to deliver PEC. However their PEC workers’ high turnover and low attendance rate meant an additional ongoing need for retraining.

• Refractionists appear to be a more clinical and cost effective option.

• Way forward could be a programme using a combination of refractionists and PHC workers with the former providing continuing training and micromanagement in a “vision centre” setting within the community.
School Children Vision Screening Programme
Situation Analysis - April 2000

Supported by Munawwar Foundation

Vision screening exercise in three local elementary schools in April and May 2000

1340 children were screened

16% urban and 50% of rural children uncorrected and never been seen before.

42 children were found vision less than 6/12 (3.13%)
Lessons learnt

- Children need to be screened for need for glasses on annual basis
- If teachers are trained in initial screening, such a screening will be much more cost effective
- This teachers training programme will have to be repeated every year
- Down stream arrangements of providing consultations, free glasses, transport etc will have to be provided.
- Adequately trained staff to provide all this will have to be made available
School Children Vision Screening Programme Pilot Project - 2000

Supported by Sight Savers
Interventional

Seventeen schools within 5 miles radius of MMH were selected.
- 2102 children were screened
- 45 children (2.14%) children requiring glasses were provided free glasses
## School Children Vision Screening Programme
### Elementary Schools of Tehsil Chakwal – 2001 / 2002
### Supported by TVO Islamabad

<table>
<thead>
<tr>
<th>Objectives / activities</th>
<th>Actually achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of Teachers in Vision screening</td>
<td>333</td>
</tr>
<tr>
<td>Schools covered</td>
<td>57</td>
</tr>
<tr>
<td>School children screened</td>
<td>6833</td>
</tr>
<tr>
<td>Students Referred</td>
<td>740</td>
</tr>
<tr>
<td>No Of Students With Vision &lt;6/12</td>
<td>423</td>
</tr>
<tr>
<td>Spectacles Provided</td>
<td>355 (5.2 %)</td>
</tr>
<tr>
<td>Students Referred to Other Tertiary Hospital</td>
<td>22 (5%)</td>
</tr>
<tr>
<td>Advised LVA</td>
<td>8</td>
</tr>
<tr>
<td>Myopia</td>
<td>306 (86 %)</td>
</tr>
<tr>
<td>Hyperopic</td>
<td>49 (14%)</td>
</tr>
</tbody>
</table>
Children Vision Screening Project in Plan Communities sponsored by Plan Pakistan - 2002 – 03

<table>
<thead>
<tr>
<th>Total schools screened</th>
<th>Total screened children</th>
<th>Total referred</th>
<th>&lt; 6/12</th>
<th>Prevalence of Refractive errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>2731</td>
<td>181</td>
<td>58</td>
<td>2.15%</td>
</tr>
</tbody>
</table>
School Eye Health Programs 2004 to 2009 - supported by Plan Pakistan

<table>
<thead>
<tr>
<th>Year</th>
<th>Teachers trained</th>
<th>Schools screened</th>
<th>School children examined</th>
<th>Glasses provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/05</td>
<td>602</td>
<td>85</td>
<td>25736</td>
<td>1320</td>
</tr>
<tr>
<td>2005/06</td>
<td>1204</td>
<td>170</td>
<td>51472</td>
<td>2640</td>
</tr>
<tr>
<td>2006/07</td>
<td>2408</td>
<td>107</td>
<td>102944</td>
<td>874</td>
</tr>
<tr>
<td>Total</td>
<td>4214</td>
<td>362</td>
<td>180152</td>
<td>4834</td>
</tr>
</tbody>
</table>
Summary

• Lot of us are interested in delivering care in homeland

• Best way forward is to be a catalyst of change to make existing services more effective (do not forget cost effectiveness and sustainability)

• Development of sustainable PEC is the key

• Looking at our experience, human resource building esp. optometry training is the way forward – Join us in our Optometry BSc training programme, sponsor a student
Thank You