Human Resources for Eye Health

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Dear Reader,

Globally there were an estimated 253 million visually impaired people in 2015 of whom 36 million people were blind and 217 million people had severe or moderate visual impairment. A further 1.1 billion people had near-vision impairment. 89% of visually impaired people live in low and middle-income countries; and 55% of visually impaired people were women. However, in Sub-Saharan Africa available human resources for eye health are inadequate to meet the challenge (page 4).

There are many agendas in the eye health sector in Sub-Saharan Africa, from a specific disease focus to technology, evidence and financing but one issue around which everyone can unite is the need to strengthen the eye health workforce. Mr. Graham describes the role of strategic advocacy in resolving the human resources for eye health (HReH) workforce crisis in Sub-Saharan Africa (page 6).

Considerable progress has been achieved in the field of HReH development with the support of LIGHT FOR THE WORLD in many countries in Sub Saharan Africa including Mozambique that produced results in training of ophthalmic technicians and ophthalmologists (page 12), Burkina Faso that managed to increase the number of ophthalmologists and established its first national ophthalmology training programme in Ouagadougou (page 8), Uganda that trained OCOs as refractionists and also started training of optometrists for the first time in the country and Ethiopia that significantly contributed to increasing the number of trained ophthalmologists and allied ophthalmic personnel in the country through two residency training programmes in Jimma and Gondar although only the programme in Jimma is highlighted here (page 10).

With the anticipated increase in the demand for eye health services due to population growth and ageing, Sub-Saharan Africa should make the right decisions regarding its HReH policies to be adopted now in the context of future anticipated eye care needs of its population and ensure the HReH needs are met.

We thank our partners!

Dr. Amir Bedri Kello,
Director Eye Health/NTDs
Light for the World
Human Resources for Eye Health (HReH) in Sub-Saharan Africa (SSA)

Dr. Amir Bedri Kello, Director Eye Health/NTDs, Light for the World

THE BURDEN OF EYE DISEASES

According to the recently published data in The Lancet Global Health by the Vision Loss Expert Group, globally there were an estimated 253 million visually impaired people in 2015 of whom 36 million people were blind and 217 million people had severe or moderate visual impairment. A further 1.1 billion people had near-vision impairment. 89% of visually impaired people live in low and middle-income countries; and 55% of visually impaired people were women.

In Sub-Saharan Africa (SSA), there were 4.3 million people who were blind and further 17.4 million people who had severe to moderate visual impairment. The prevalence of vision impairment, including blindness and MSVI, was the highest in Western SSA and the lowest in Southern SSA (Table 1).

Although SSA has very high burden of eye diseases, it has inadequate number of eye care cadres to address these challenges. The critical shortage of health workers in SSA, including human resources for eye health, is now widely recognised as one of the most fundamental constraints to achieving progress on health generally and eye health specifically.

Due to lack of adequate human resources for eye health and poor eye care service delivery systems in most of the SSA countries, cataract still remains the leading cause of blindness in SSA. Cataract is a treatable condition with an intervention that is known to be very cost-effective. Moreover, emerging conditions such as posterior segment diseases like glaucoma, diabetic retinopathy and macular degeneration are gaining increased importance as causes of blindness and vision impairment and require sub-specialist level qualifications for their proper management.

HUMAN RESOURCES FOR HEALTH IN SSA

Of the many challenges faced by the health sector in SSA, the human resources for health (HRH) issues are among the major ones. Existing weaknesses in health systems including shortage of skilled health workforce in majority of the countries is recognized as a major challenge to delivery of essential health interventions and progress towards achieving health objectives in SSA. Of the 46 countries in the Region, 36 have critical shortage of HRH,

TABLE 1: REGIONAL BURDEN OF VISION LOSS IN SUB-SAHARAN AFRICA

Source: Compiled from data presented by the IAPB Vision Atlas

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Countries</th>
<th>Population in millions</th>
<th>Prevalence of VI</th>
<th>Number Blind</th>
<th>Number MSVI</th>
<th>Number Near VI in millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western SSA</td>
<td>19</td>
<td>391</td>
<td>5.58%</td>
<td>1,891,551</td>
<td>7,854,587</td>
<td>41.2</td>
</tr>
<tr>
<td>Central SSA</td>
<td>6</td>
<td>114</td>
<td>4.58%</td>
<td>309,618</td>
<td>2,046,239</td>
<td>11.6</td>
</tr>
<tr>
<td>Eastern SSA</td>
<td>15</td>
<td>376</td>
<td>4.57%</td>
<td>1,660,526</td>
<td>6,227,415</td>
<td>36.0</td>
</tr>
<tr>
<td>Southern SSA</td>
<td>6</td>
<td>78</td>
<td>3.33%</td>
<td>419,063</td>
<td>1,231,151</td>
<td>12.3</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>959</td>
<td></td>
<td>4,280,758</td>
<td>17,359,392</td>
<td>101.1</td>
</tr>
</tbody>
</table>
HUMAN RESOURCES FOR EYE HEALTH

8 with only about 0.8 physicians, nurses and midwives per 1000 population while the minimum acceptable density threshold is 2.3 per 1000 population.

The following factors have been identified by WHO/AFRO as the main reasons for the shortage of health workforce in SSA that constitutes a key impediment to meeting the needs for health care delivery: migration of qualified health workers, inadequate remuneration and incentives, maldistribution of the available health workers, underinvestment in the training of sufficient number of health workers, inadequate capacity of HRH departments to carry out the main HRH functions, and low or inadequate implementation of most of the existing HRH plans. The situation of HRH in SSA is no exception in this regard.

MAJOR CHALLENGES IN HREH

Considerable progress has been made after the launching of the WHO global initiative in 1999 to eliminate avoidable blindness by the year 2020: VISION 2020 – The Right to Sight. Human resources development was one of the three pillars of the VISION 2020 – The Right to Sight initiative. However, most of the countries in the SSA still do not meet the recommendation for the minimum number of eye care cadres that was set by the WHO.

The shortage in HREH is particularly pronounced in Francophone and Lusophone countries of SSA. The challenge is not only due to the inadequate number of HREH but also issues of maldistribution with the majority of eye care workers residing in the capital cities or few other big cities leaving most of the population that lives in rural Africa with no or little eye care services if at all.

WHAT IS BEING DONE

More recently, WHO has developed Universal Eye Health—the Global Action Plan (GAP) with the goal of reducing vision loss by 25% by the year 2019. As the VISION 2020 initiative and the GAP both indicate, the required HREH need to be available, appropriately skilled, supported, and productive. HREH should not be seen as a stand-alone entity that needs to be addressed separately but as being part of the six health systems building blocks that are interdependent. Eye care service provision is not only linked to availability of HREH but also equipment and supplies, financing, information flow, and governance at the implementation level. Weaknesses in one of the sectors impacts the others.

IAPB Africa has identified HREH as the major factor for ensuring eye care services in SSA and has formulated its HREH Strategic Plan 2014 – 2023. SSA countries are investing increasingly in the training of ophthalmologists, optometrists and AOP.

The shortage of trained eye doctors has forced some SSA countries to revert to what is called task shifting to address the eye care services need of their population including provision of cataract surgery by non-physician cataract surgeons who were expected to be placed in rural areas with no ophthalmologists. Although task shifting has been successfully implemented in some countries of the SSA, where they could guarantee an ongoing supportive supervision and oversight by the respective ministries of health, in most cases this cadre is plagued with low productivity due to lack of the necessary support.

Task shifting should not be seen as the solution for every problem in HREH and it cannot be an answer for the emerging eye conditions that are mainly diseases of the posterior segment. These diseases require well trained and qualified ophthalmologists preferably at sub-specialty level. HREH policies adopted now in SSA regarding specific cadres should be viewed in the context of future anticipated eye care needs of the region.

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**TABLE 2: DISTRIBUTION OF EYE HEALTH WORKERS IN SUB-SAHARAN AFRICA**

<table>
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<tr>
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<th>Ophthalmologist</th>
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<tr>
<td><strong>Minimum required</strong></td>
<td></td>
<td></td>
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<tr>
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<td>4</td>
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<td><strong>Actual number</strong></td>
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<td></td>
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<td>2.4</td>
<td>12.7</td>
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</tr>
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<td>3.8</td>
</tr>
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<td>Lusophone</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total for Sub-Saharan Africa</strong></td>
<td>2,038</td>
<td>7,529</td>
<td>5,561</td>
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Achievements in Advocacy for HReH in SSA

Ronnie Graham, Independent Consultant, Lower Largo, Scotland.

1. THE CRISIS IN THE EYE HEALTH WORKFORCE IN SSA

There are many agendas in the eye health sector in Sub Saharan Africa, from a specific disease focus to technology, evidence and financing but one issue around which everyone can unite is the need to strengthen the eye health workforce.

The population of Africa will double by 2050 and many new challenges are appearing as the population ages. Yet, with only a few exceptions, SSA is failing to meet even the minimum requirements for its eye health workforce, far less the expectations of comprehensive eye Health.

In response to this growing crisis, IAPB Africa developed a regional advocacy plan to support its new Human Resources for Eye Health Strategy, A Vision for Africa: 2014-2023, providing direction for all subsequent advocacy activities by IAPB Africa.

2. WHAT IS STRATEGIC ADVOCACY

What exactly is advocacy and how can we all engage in the process? Advocacy involves a change in both policy and practice, but effective advocacy always requires a change in practice.

It is about change.
It is systematic.
It takes time.
It is ‘low cost’, but is not ‘no cost’.
Finally, it is always contested!

Advocacy appears regularly on many list of priority activities to be undertaken in eye health but in most cases, little is actually done to take the agenda forward, despite the fact that we have abundant ammunition at our disposal such as evidence-based arguments of the total burden of eye disease (1 in 4) and the potential return on investment (1 to 4).

Advocacy plans must be feasible, affordable, realistic and be presented professionally—and ready for the inevitable challengers, opponents and critics. It is therefore essential that all stakeholders unite behind the same issue and speak with one loud voice.

Strategic advocacy can be undertaken at a number of different levels, or domains. Regional advocacy involves working with WHO-Afro and the African Platform for HRH; Sub-regional advocacy involves working with the sub-Regional Health Authorities and professional bodies.
National advocacy, as promoted by IAPB over the last few years, focuses on assembling all key stakeholders in the country—including the HRH Directorate, the National Eye Care Coordinator, professional bodies, training institutions, civil society and the international eye health agencies, because, ultimately and despite any number of international resolutions and declarations, change happens at the national level.

IAPB Africa initially focused on 5 countries, Senegal, Ghana, Cameroon, Kenya and Mozambique, adding 6 more in 2015—Mali, Burkina Faso, Malawi, Zambia, Tanzania and Uganda and 3 more in 2016—Togo Ethiopia and Benin, reflecting the regional and linguistic diversity of the continent.

The IAPB strategy had the initial goal of integrating HReH into the national HRH plan, with the ultimate objective of increased budget allocation to support the expansion of the eye health workforce.

Such an achievement would mark a major paradigm shift whereby Ministries of Health assumed a greater responsibility for their eye health workforce. This basic proposition is outlined below.

1. Governments have not historically prioritised eye health
2. But they invest heavily in the health workforce (33% of health budgets)
3. This is an opportunity to integrate the eye health into workforce planning
4. While the ‘fiscal space’ for health varies enormously from country to country, health budgets are generally increasing, according to WHO.

Since then, Ethiopia, Zambia, Malawi, Mozambique, Kenya, South Africa and Cameroon have succeeded in integrating eye health workforce planning into national RH plans.

3. HOW ADVOCACY CAN HELP US RESOLVE THE WORKFORCE CRISIS

Integration, of all aspects of the Global Action Plan, is central to improving eye health in Africa. This includes integrated workforce planning. There are 2 clear steps in the process (1) Using strategic advocacy to achieve integrated workforce planning and (2) Using the same advocacy tools to increase government funding for the eye health workforce (training, deployment and retention). In practice, some countries followed the advocacy planning process rigorously whilst others have been able to take short cuts to achieve the same objective, making use of the WHO WISN workforce planning tool to reinforce the IAPB planning process.

4. CASE STUDY: ETHIOPIA

A small delegation from Ethiopia participated in the IAPB advocacy capacity building workshop in Togo in January 2017. At that time, Ethiopia had just developed a new national eye care plan and a new national HRH plan. However, the 2 plans were not linked: The first being a vertical disease control plan and the second a cross cutting approach to health system strengthening. On their return home, the team moved quickly and at the end of February, the Technical Advisor for Eye Health shared a progress report noting that:

“After the meeting, I communicated with persons in HRD. They have developed a HRH plan and even though it is already endorsed they have promised to include HReH into the existing HRH document. To progress our advocacy on the above and other important issues, we have to develop a steering committee from our NCPB and human resource directorate.”

This approach to bringing about change at the national level proved successful and towards the end of June 2017 IAPB was advised that “The Department of Health has revised the national HRH plan which addresses HReH significantly. The Ministry is finalizing its 5-year national eye care strategic plan which also incorporates the issue of HReH abundantly”. The new National HRH Plan was attached.

Having successfully integrated the planning of the current eye health workforce (ophthalmologists, optometrists, cataract surgeons and ophthalmic nurses) into the new national HRH plan, much still remains to be done.

The HReH advocacy group can be further strengthened with the full participation of all stakeholders in eye health: More detailed planning of the eye health workforce needs to be undertaken to ensure a workforce ‘fit for purpose’ and, perhaps above all, the advocacy group must continue to push for increased government support for the eye health workforce as part and parcel of the global, movement to resolve the health workforce crisis.

5. CONCLUSIONS

Strategic advocacy, if done well, can produce impressive results. It is an approach and a set of skills which all eye health agencies can adopt if we are to break the cycle of mobilising ever increasing resources to support isolated eye health projects in an increasing number of countries.

Donor supported projects are a useful and important addition to national eye health programmes but without national ownership and investment we will continue to struggle with the ‘development dilemma’ whereby increased donor support simply relieves government of its responsibilities for the health of its people and distorts their efforts to strengthen health systems and thereby achieve universal health coverage.
The Development of HReH in Burkina Faso

Elie Bagbila, Country Representative, Light for the World—Burkina Faso

In Burkina Faso, as in many countries in Sub-Saharan Africa, the health workforce gap is the main challenge for the development of comprehensive eye health services. Light for the World, in collaboration with its partners, including the Austrian Development Agency and L’Occitane Foundation, has made human resources in eye health its focus in Burkina Faso for more than a decade.


In the 1980s and 1990s, the fight against blindness in Burkina Faso focused mainly on onchocerciasis and the mass distribution of drugs. The number of ophthalmologists remained almost the same for a long time, with around 20 ophthalmologists all concentrated in the major urban centres. Gradually, in the years 1990 to 2005, awareness increased about the need to strengthen human resources for eye health (HReH). Slowly we witnessed the arrival of a new generation of ophthalmologists after a lethargy in the recruitment and training of specialists by the Ministry of Health. The training of cataract surgeons was used as a palliative solution to compensate for the lengthy duration of the ophthalmology training that took place outside the country. At the time, Burkina Faso had 28 cataract surgeons. The first national eye health plan 2003–2007 experienced major challenges in implementation. At the community level, eye health services were mainly organised by Community-Based Rehabilitation programmes, using the workforce of neighbouring countries.


The 2006 census on HReH showed that Burkina Faso had 25 ophthalmologists and 130 ophthalmic nurses. Only 4 of the 13 regions had ophthalmologists and more than half of the health districts at the time had no coverage in eye care whatsoever. 68% of ophthalmic nurses worked in Ouagadougou and Bobo Dioulasso. After having started its activities in Burkina Faso in 2004, Light for the World opened a Country Office in 2009, and immediately began its ophthalmology scholarship programme with IOTA in Bamako, Mali. The approach was simple: The Ministry of Health took responsibility for the recruitment, scholarship administration, inclusion on government payroll and placement of the newly trained eye doctors.

The programme did face some challenges at first. Out of the 5 scholarships available in 2009 and 2010, respectively only one candidate was recruited. The lack of enthusiasm for ophthalmology was striking: “Ophthalmology does not put food on the table”. In addition, the lack of coordination between the National Eye Health Programme and the Human Resource Department led to not respect the placement of ophthalmologists in priority regions as stipulated in the contract.

Light for the World strengthened its advocacy at all levels, including reinforcing relations with the Ophthalmological Society of Burkina Faso (SBO) and raising awareness of the Human Resource Department of the Ministry of Health. The results were encouraging. In total, between 2009 and 2018, Light for the World trained 9 ophthalmologists for Burkina Faso, and all of them, with one exception, are placed outside of Ouagadougou. Additional 2 ophthalmologists will graduate in 2018 and should also be placed in priority regions.

In parallel, Light for the World intensified its advocacy in 2008-2009 for the recognition of eye health as a health priority. The second national strategic plan for eye health 2009 – 2013 dedicated a whole chapter to human resource development. At regional levels, Light for the World supported the inauguration and development of the Ophthalmological Centre of Zorgho in 2004 and projects to increase and improve the service provision in collaboration with public hospitals in Nouna, Koudou-
HUMAN RESOURCES FOR EYE HEALTH

9

HUMAN RESOURCES FOR EYE HEALTH

3. THE BOOST: IMPROVED QUANTITY AND DISTRIBUTION (2015 TO THE PRESENT DAY)

In 2016, Burkina Faso had 33 ophthalmologists in 7 out of 13 regions. Despite this success, the pace of training ophthalmologists was still not sufficient to meet the enormous and growing need for HReH. Scholarships outside the country are expensive and young doctors found the conditions of recruitment unfavourable. In this perspective, Light for the World supported the initiative of the Ministries of Health and Higher Education and SBO to develop a Diploma of Advanced Studies in Ophthalmology (called DESOPH) at the University of Ouagadougou. In 2014, Light for the World supported an exchange visit to IOTA for representatives of the DESOPH teaching team. The DESOPH opened its doors to the first students in 2015. In 2016 and 2017, Light for the World supported DESOPH to acquire didactic materials and teaching equipment, with a strong emphasis on practical skills of students. The lack of enthusiasm of young doctors was no longer a problem: Indeed, the first batch of ophthalmology residents counted 6 doctors, and currently the 4 ongoing batches of the DESOPH include a total of 20 doctors.

At national level, in collaboration with the International Agency for the Prevention of Blindness (IAPB) in 2015, Light for the World advocated for the integration of HReH into human resources for health planning. A special emphasis was placed on optometrists, a cadre that is still not recognized by the public service. A major victory so far has been the inclusion of optometrists into the revision of health cadres awaiting approval by the Council of Ministers.

Most importantly, as ophthalmologists became more available in the regions, eye health services could be strengthened for the rural populations. The ophthalmologists trained and placed in regions were provided with equipment to practice what they learnt. To support the operationalisation of the national eye health plan 2016-2020, a first regional eye health plan was developed in the Centre Ouest in 2016, followed by the Boucle du Mouhoun (in collaboration with cbm) in 2017. Initiatives to develop national eye health training modules for teachers, primary and community health workers were started.

4. TAKING FLIGHT: PERSPECTIVES THAT GIVE HOPE (2018 – 2022)

Admittedly, there are still major challenges in terms of human resources in eye health in Burkina Faso. For example, the country still has no sub-specialist ophthalmologists in the areas that have become increasingly important, including glaucoma, diabetic retinopathy, paediatric ophthalmology, and so on. Optometrists and assistant optometrists, awaiting recognition by the Ministry of Health, are only three! That said, we estimate that by 2022 there will be at least 55 ophthalmologists, and that each health region will have at least one ophthalmologist, a big step forward for the country.

In November 2017, Light for the World and the Ministry of Health organised a workshop for the development of HReH, bringing together a wide variety of relevant stakeholders (different departments of the Ministry, professional bodies, training institutions, NGOs and donors). This workshop, that has resulted in a National Human Resources for Eye Health Development Plan, has marked a new page in the history of this sector in Burkina Faso. The plan provides a clear vision for all concerned about the need and priorities, not only with ophthalmologists in mind, but looking at the entire eye care team, including optometrists, ophthalmic nurses, primary and community health workers.

This new chapter for eye health will see the arrival of sub-specialists and optometrists in Burkina Faso, the qualitative development of training centres for all eye health cadres, and the integration of eye health into the training of primary and community health workers.
HReH Development in Ethiopia
The Case of Jimma University Department of Ophthalmology (JUDO)

Dr. Sisay Bekele, Head Department of Ophthalmology, JUDO

Adequately trained eye care workers are one of the core components in the prevention, treatment and rehabilitation of avoidable blindness. Human resource development was one of the three pillars for the achievement of “VISION 2020: The Right to Sight” that was launched in 1999.

Although, Ethiopia launched VISION 2020 initiative in September 2002 and human resources development was one the areas included in the subsequent national strategic plans for eye care, implementation was a huge challenge. Training of eye care workers was limited to very few centres and until 2006 only Addis Ababa University was running the training of ophthalmologists at Menelik II Hospital. As a result, there were disproportionately small number of ophthalmologists in the country and only few hospitals in the country had trained ophthalmologist in place to give comprehensive eye care service. To make the matter worse, the few available ophthalmologists were concentrated Addis Ababa and other main cities of the country, making equitable access to eye care service impossible. To tackle the challenge, NGOs working on eye health in the country supported the training of different eye care cadres including that of ophthalmologists and mid-level eye care workers to address the priorities set in the national strategic plan for eye care. The NGOs also advocated for the need to expand training centres for ophthalmologists and started supporting university hospitals to open residency training programmes outside of the capital city.

Light for the World is among the NGOs in the country who have played a huge role in supporting the expansion of the training of mid-level eye care workers and residency programme for ophthalmology. With the establishment of a residency training programme in Jimma town, Jimma University Department Ophthalmology (JUDO) became the first residency training programme outside of the capital, Addis Ababa. Moreover, the construction of a new tertiary eye care unit with different facilities has played a pivotal role. To enable the department to carry out multifaceted tertiary eye care service, ophthalmic training and research undertakings.

Since 2006, JUDO has been running postgraduate programme in Ophthalmology Specialty. In addition to the training activities, the department has been delivering a comprehensive eye care service at base hospital and in the satellite eye outreach centres in the southwestern part of Ethiopia. Ophthalmology residency programme is the main training programme run by JUDO. This programme has faced several ups and downs to reach at current stage. Light for the World has been instrumental to solve the challenges together with JUDO and for the sustainability of the programme by giving direct and indirect support for the training programme. Through the support of Light for the World, JUDO became a well-equipped centre to run the residency program for training of ophthalmologists. So far, it has graduated 8 ophthalmologists and there are currently 13 residents in training.

The post-basic BSc program in cataract surgery that was started in 2006 graduated a total of 24 cataract surgeons over a period of 6 years. The support of light for the world was tremendous during this...
period. There were a lot of challenges to undertake the training. Among the challenges were shortage of academic staffs, limited numbers of equipment and shortage of consumables. Light for the world committed itself to alleviate the challenges. The provision of incentives for the staff members has partly contributed for the improvement in the number of academic staff needed for the trainings and nearly all the equipment that our department possesses were donated by Light for the World. Those have significantly changed the quality of the training given to the eye health care workers. Light for the world was also the sole supporter of the outreach programme that our department is still running. This program supplemented the training programme by giving more exposure for the trainees to develop their surgical skills as well as their knowledge on conducting outreach eye care service as it will be part of their future career.

Light for the world has also been giving support for the residents by providing basic books and some instruments which are important for ophthalmic residents. Some of the residents were also sent to Austria to get exposure to state of the art ophthalmic care. This has been instrumental to motivate residents and attract other doctors to join the profession as one of the main challenges for the residency programme was shortage of applicants. Light for the World had also created a forum with the regional health bureaus to create awareness on the demand of ophthalmologists and the need to sponsor trainees by the regional health bureaus for deployment in their regions.

Light for the World has been giving hands-on training for the ophthalmologists at the department. This was of a paramount importance in skills transfer. Through this programme, some of the non-existing subspecialty clinics were established and the services that are given improved the quality of the training and the eye care service delivery for the patients. Every year, some of the ophthalmologist from JUDO are sponsored by Light for the World to attend national and international conferences. This gave the ophthalmologists a forum for continued professional development and it has a direct impact on the quality of the training.

In general, through the support of Light for the World, Jimma University Department of Ophthalmology has contributed towards human resource development of the country by producing mid-level eye care workers and ophthalmologists. This has improved the HReH to population ratio, which is translated to equity and access to eye care service in the country.
Development of HReH in Mozambique

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BACKGROUND

The development of human resources for eye health (HReH) is one of the main components of the "VISION 2020: The Right to Sight", a global initiative jointly launched by the World Health Organization (WHO), and the International Agency for Prevention of Blindness (IAPB) in 1999. In order to reduce the prevalence of avoidable visual impairment by the year 2020, there was a need to invest in the development of HReH because clearly there was not enough HReH to achieve the established global eye health targets.

LIGHT FOR THE WORLD started supporting eye health work in Mozambique through the Ministry of Health in 2003. It supported the national eye health programme in its efforts to implement sustainable, affordable & equitable comprehensive eyecare programme aiming at reducing the prevalence of avoidable visual impairment in the country. Light for the World’s support was focused on bridging government efforts at different levels of eye care delivery from the tertiary, secondary, and primary levels. In this period, the shortage of HReH has been felt at all levels as being one of the main barriers to providing quality and comprehensive services. To respond to this challenge, eye health stakeholders supported the National Eye Health Programme in its effort to define strategic plans to address HReH in the country.

Decentralization and Expansion of Training of Ophthalmic Technicians

Historically, the training of all health professionals including ophthalmic technicians was conducted in Maputo, the capital of the country. There was no clear schedule of the training, trainings were done in an irregular way, without a programme and timeline. In 2010, in the context of the implementation of a European Union project, Light for the World and Sightsavers, discussed with the Ministry of Health to decentralize the training of ophthalmic technicians to Beira and Nampula Institute of Health Sciences. This is how the first mid-level promotional course of ophthalmic technicians started in 2011 in Beira and in 2012 also in Nampula. The results of the decentralization of the training of ophthalmic technicians are clearly visible today. The number of ophthalmic technicians increased from 19 in 2011 to 214 in 2017.

Today, the Ministry of Health has a programme and a training schedule for ophthalmic technicians, which is published in the Ministry of Health’s general education programme. After the initial courses, which were 100% funded by Light for the World and Sightsavers through the European Union, the government took over almost the entire financing. Almost all the expenses for the training courses that are running currently are assumed by the government.

TRAINING OF OPHTHALMOLOGISTS

In 2011, for a population of 23 million living in 11 provinces in the country, there were only 8 national ophthalmologists, of whom 6 were located in Maputo. Of the remaining ophthalmologists, one was placed in
Sofala and another one in Nampula. The duration of training of local ophthalmologists lasted for about 5 to 6 years with no clear timeline for taking the final exams. This resulted in graduation of one ophthalmologist every 5 to 6 years.

It was from this perspective that Light for the World prioritized the training of ophthalmologists abroad, specifically in the United Republic of Tanzania (in Moshi) and the Republic of Kenya (Nairobi). During the last 8 years, 10 scholarships were awarded to postgraduate students in ophthalmology. Light for the World also supported practical internships in Uganda for 2 residents who were attending the course at Maputo Central Hospital. The number of national ophthalmologists gradually increased, reaching 20 in 2017. Today, 9 provinces out of the 11 in the country have national ophthalmologists as compared to only 3 provinces in 2011. Currently, the Ministry of Health, in coordination with Light for the World and COECSA, is focused on improving the quality of training at the Maputo Central Hospital. At the same time, there is a discussion about the expansion of the residency training programme Beira and Nampula, where attachment programme for ophthalmology residents has already started.

**TRAINING OF OPTOMETRIST**

In 2014, the first optometrists trained in the country graduated from the University of Lúrio in the Province of Nampula, with support from Brien Holden Vision Institute. Because it is a new professional category that was not part of the professional framework of the Ministry of Health, it was very difficult for the government to take up this professional career. The Mozambique Eye Care Coalition (MECC), which at the time was led by Light for the World, took a very important role in advocating to persuade the government to register optometrists as one of the medical professions. Today there are about 25 optometrists who graduated from University of Lúrio who were absorbed into the government health system and work in different hospitals in the country.

**TRAINING OF EQUIPMENT MAINTENANCE TECHNICIANS**

In Mozambique, there is no professional career for maintenance technicians specifically for ophthalmology. But it is an important category for smooth functioning of eye health activities by ensuring the repair and maintenance of ophthalmic equipment. Therefore, in October 2017, Light for the World financed a training of equipment maintenance technicians in coordination with the Ministry of Health through the Department of Maintenance and National Eye Health Programme. The training was conducted by consultants from Aravind Eye Hospitals, India.

**CHALLENGES FOR HREH IN MOZAMBIQUE**

Despite the different strategies and efforts being undertaken to improve quantity and quality of HReH in Mozambique, there are still many challenges to reach the main objective of the country to provide comprehensive eye care services also in the most remote areas of the country. Another challenge is related to the retention of eye health staff particularly the retention ophthalmic technicians as this cadre does not have career progression plan. As the result of this situation, some ophthalmic technicians are leaving the eye health sector for other health sectors where there is opportunity for career progression, which makes efforts of increasing the number of allied ophthalmic personnel challenging.

**PARTNERSHIPS IN HREH DEVELOPMENT**

In order to improve the training quality of trained cadres, several partnerships were established in the southern and eastern regions of Africa, especially with College of Ophthalmology Eastern Central and Southern Africa (COECSA) and Kilimanjaro Center for Community Ophthalmology (KCCO). Initially the team of the National Eye Health Programme made visits to other countries in the region to interact and learn about the development progress in eye health in these countries.

In December 2017, at the invitation of the Mozambique College of Ophthalmology, with the support of Light for the World, the COECSA team paid a visit to the Ministry of Health, specifically the institutions linked to the Eye Health Programme, to see how ophthalmologists are being trained in the country including conditions of infrastructure, quality, curriculum and the technical capacity of trainers. The team left clear recommendations for improving the quality of training, as well as improving service delivery.

**HREH DEVELOPMENT PLAN IN MOZAMBIQUE**

Until 2015, Mozambique did not have a national HReH development plan that guided training and placement of eye health personnel. With technical and financial support from Light for the World, the National Eye Health Plan was drawn up in 2014. It was at this time that the subject of human resource development was widely discussed, where objectives, targets and indication of new career paths were defined which should be part of the programme. It is a tremendous success for eye health that today the HReH development plan is part of the Ministry of Health’s general human resources development plan.
The NIURE Experience

Development of HReH to Address Uncorrected Refractive Errors in Uganda

Wolfgang Gindorfer, Senior Consultant URE, Light for the World

PREVALENCE AND MAGNITUDE OF REFRACTIVE ERRORS

According to recent data published by the Vision Loss Expert Group in the Lancet, there are an estimated 253 million people with visual impairment globally, of whom 36 million are blind. Women are disproportionately affected as they represent 55% of visually impaired people. Nearly 90% of visually impaired people live in low and middle-income countries. More than 75% of visual impairment is avoidable.

Globally, the major causes of visual impairment are uncorrected refractive errors (49%) and cataract (26%). Cataract still represents the major cause of blindness (35%), followed by uncorrected refractive errors (21%) and glaucoma (8%). An estimated 19 million children are vision impaired, of whom 12 million children have a visual impairment due to refractive error. Around 1.4 million have irreversible blindness, requiring access to vision rehabilitation services to optimize functioning and reduce disability.

Uncorrected refractive errors (URE) can hamper performance at school, reduce employability and productivity, and generally impair quality of life.

NATIONAL INTERVENTION ON UNCORRECTED REFRACTIVE ERRORS (NIURE)

The NIURE programme in Uganda comprises of multiple strategies to address URE and School Eye Health (SHE) on a national level, with a strong emphasis on human resource development to ensure that high-quality refraction and provision of optical services are available where needed.

In agreement with the Ugandan Ministry of Health (MoH) and its national eye health plan, a sustainable development strategy was developed with NIURE programme interventions being integrated within the government health care structure. The NIURE programme has jointly been developed and implemented by Light for the World and Brien Holden Vision Institute under the auspices of the MoH since 2008.

HUMAN RESOURCE DEVELOPMENT AND NIURE

According to the IAPB Vision Atlas, Uganda presently has 45 ophthalmologists for a population of more than 40 million people. As in most African countries the majority is primarily practising in the capital. Additionally, about 240 Ophthalmic Clinical Officers (OCOs) are providing primary eye care throughout the country, but refraction skills are limited to utmost basics. When starting to address URE in Uganda, we started by assessing the human resources available in the country and define the gap.

From the outset, the ultimate aim of NIURE in terms of human resource development has been to introduce optometrists within the health care system. To achieve this, Light for the World and the Brien Holden Vision Institute developed the first optometry training (4 years Bachelor’s degree course) at Makerere University. We provided a state-of-the-art optometric teaching lab and an integrated academic vision centre housed within Makerere to ensure the best possible learning conditions for the students. The first batch of 6 students shall graduate in 2018 and become the first “home grown” Ugandan optometrists.

In parallel, we are presently working on formal recognition of the optometry profession and to lobby for integration within public service. This is a crucial step, to integrate optometrists into the eye health team and onto the government payroll. With the optometry degree in place, we have created a critical mass of individuals who continue to advocate for official recognition, career path, etc. One crucial milestone achieved in 2017 has been receiving government sponsorship for 10 optometry students ensuring acceptance of the course by the Ugandan government. This surely will also have some positive influence to get this new profession regulated as part of public service in due course.

With the vision of optometrists in sufficient number, skills and equitable distribution, the estimate was...
that at least 10 to 15 years would be required to set up the course and provide a 4-years training till a tangible number of optometrists has entered the labour market. To bridge this gap, from 2008 onwards, NIURE offered a 6-weeks training course in objective and subjective sphero-cylindrical refraction to 74 OCOs primarily based at government health units across the country. These OCOs were selected by the National Eye Health Coordinator in close collaboration with Regional Ophthalmologists. This programme component has now ended, as we are expecting Ugandan graduates in optometry from this year onwards. In the meantime, Uganda now has a broad base of OCO/Refractionists working throughout the country.

As another important programme component was service delivery, NIURE developed a national optical workshop based at Entebbe General Referral Hospital that produces tailor-made spectacles according to the prescriptions received from trained OCOs across the country using coded frames. To enable this, initial 6-month training was provided to 3 spectacle technicians of which two have been employed by the NIURE programme.

To increase demand and uptake of the services for URE, 8 district programmes were implemented for SEH, local advocacy, and community dialogue. Awareness raising was strengthened through the placement of vision corridors at major schools and selected health centres. In this context, another important human resource development component targeted secondary school teachers. Indeed, till date exactly 1,000 teachers in the 8 districts received a 1-day training to identify basic eye problems and test the vision of their pupils, while another 200 are still going to receive training in 2 districts until the end of 2020.

CONCLUSION AND FUTURE VISION

From the outset, all parties found it imperative to directly work with existing health care staff and develop a strategy to sustainably integrate refractive services in the Ugandan health service provision. Introducing the new cadre of optometry, lobbying for its recognition and streamlining within public service as an intrinsic allied health staff, were key components. OCOs employed by government were trained to bridge the service-gap through specialised refraction training. While it is envisaged that the trained OCOs shall continue to provide comprehensive refraction, the optometrists shall play a leading role in the future regarding supportive supervision for URE, SHE, low vision services and blindness preventive diagnostics as well as referral.

Through our human resource development intervention resulting in optometrists being soon part of the eye health providers, we anticipate that ophthalmologists will be able to focus on intraocular surgeries such as cataract surgery and managing severe eye conditions thus utilising this very limited, high profile professional cadre to its maximum potential for the benefit of patients in need.

Soon, we hope to see an extended comprehensive eye care team to enhance opportunities achieving universal eye health in Uganda. A slight shift towards training teams in this regard is desirable where all eye health cadres participate for improved performance, changing the mind-set from a pure clinical training towards a wider team approach. A draft position paper on training teams has just been developed by the respective committee of the International Council of Ophthalmology awaiting final approval of its board.
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