

Community Eye Health Journal

VOLUME 33 • NUMBER 110 • 2020

South Asia Edition

Don't miss out

Download the free
Community Eye Health
Journal app today!

bit.ly/CEHJ-app



SCAN ME



An ophthalmic assistant performs auto refraction, in Sagarmatha Chaudhary Eye Hospital.

LAMANI, NEPAL
YUDDHA SARKOTA

The role of allied ophthalmic personnel in achieving universal eye health coverage in South Asia



YD Sapkota
Regional Programme Manager, South East Asia: International Agency for Prevention of Blindness, Nepal.

Systematic and dedicated training; setting up of regulatory bodies to monitor training, and accreditation is the need of the hour in improving eye care resources in South Asian nations.

The need for expansion of eye care services, primary eye care, early detection of blinding and potentially blinding conditions and injury is well-recognised. However, achieving these goals is not easy, given the limited availability of ophthalmologists. To tackle diseases and disorders that affect people's vision, and to implement comprehensive eye care, sufficient availability of the eye care personnel at all levels is necessary.

The concept of dedicated training Allied Ophthalmic Personnel (AOP) in South Asia, started in India and Nepal in 1980.¹ The training and development of eye care

resources at this level went on to become the backbone of primary, and to some extent, secondary eye care services delivery systems in South Asian nations.

The Allied Ophthalmic Personnel (AOP) deliver primary eye care and also help increase the productivity of the ophthalmologists. The training programme for the eye care personnel expanded to other South Asian countries, covering ophthalmic assistants, ophthalmic nurses, mid-level ophthalmic personnel, ophthalmic technologists, and vision technicians. These

Continues overleaf ▶



About this issue

This issue focuses on ophthalmic nursing, and their crucial role in eye care. However, in the South Asian context most of the countries have other ophthalmic professionals as part of the eye care workforce, such as nurse practitioners trained in eye care; ophthalmic and optometric assistants; vision technicians, optometrists, ocularists and orthoptists; ophthalmic and optometric technicians, and ophthalmic administrators. These professionals are qualified to assist in screening/diagnostic evaluation, management and care of patients with visual system disorders and impairments. The lack of well-trained eye care team members is a major challenge to be addressed while improving eye care in South Asia. Training and career development are necessary for the advancement of these cadres. Several nations have identified the need to address these gaps and are working towards providing much-needed training to the cadres. Read this issue to know how well-trained workforce can effectively contribute to improving eye care systems. We have included case studies from different countries of the region, highlighting the exceptional role played by ophthalmic professionals in reaching the unreached.

Contents

1 The role of allied ophthalmic personnel in achieving universal eye health coverage in South Asia

YD Sapkota

4 Growing demand for nursing in eye care in Sri Lanka

Asela Abeydeera

6 Ophthalmic nurses in vision centres in Bangladesh

Mohammed Gowth Amanullah, Golam Mostafa and Sathi Raha Bhodendranath

8 Eye care for the people by the people: a case study from the Sundarbans

Asim Sil

10 Allied eye health professionals in eye care services in Nepal

Rajendra Gyawali, Rabindra Adhikary and Himal Kandel

12 How can we make the most of allied health personnel?

Usha Kim and Dhivyaa Ramasamy

14 Training allied ophthalmic personnel to meet India's eye care needs

Sweta Patel, Prem Kumar SG, Pankaj Vishwakarma and Elizabeth Kurian

15 Paving the career path for allied ophthalmic personnel

Dhivyaa Ramasamy

17 Understanding definitions of visual impairment and functional vision

Vaishali KV and P Vijayalakshmi

19 Questions and answers

20 Key messages

professionals have contributed to the expansion and growth of eye care services, besides playing a key role in the development of both specialised and primary eye care services in all the countries of the region.

In Nepal and Bhutan, a school graduate with ten years of schooling² and three years' training in ophthalmology, will perform the following tasks:

- Diagnose and initiate treatment/ appropriate management for most common eye problems including refractive errors
- Recognise conditions that require a higher level of care and refer such cases to an ophthalmologist
- Organise and run outreach activities such as screening camps and school health programmes
- Impart eye health education, health promotion and prevention of preventable eye diseases
- Select and prepare patients who require eye surgery
- Assist the ophthalmologist during surgery
- Provide postoperative care
- Perform practical procedures involved in the examination and treatment of common eye problems
- Carry out visual acuity assessment refraction and prescription of spectacles
- Perform simple assessment of low vision and suggest necessary interventions, devices, and aids
- Counsel patients and market services
- Manage the eye clinic, including record keeping and supplies
- Supervise and train community-level health care personnel in primary eye care.

Community Eye Health Journal
South Asia Edition

VOLUME 33 • NUMBER 110 • 2020



Editors

Elmien Wolvaardt
editor@cehjournal.org

Editorial committee

Simon Arunga
João M Furtado
Clare Gilbert
Esmael Habtamu
Fatima Kyari
Ciku Mathenge
Nyawira Mwange
GVS Murthy
Heiko Philippin
Thulasiraj Ravilla
Serge Resnikoff
Jude Stern
Sumrana Yasmin
David Yorston

Regional consultants

Hugh Taylor (WPR)
Leshan Tan (WPR)
GVS Murthy (SEAR)
R Thulasiraj (SEAR)
Babar Qureshi (EMR)
Mansur Rabiou (EMR)
Hannah Faal (AFR)
Kovin Naidoo (AFR)
Wanjiku Mathenge (AFR)
Ian Murdoch (EUR)
Janos Nemeth (EUR)
Van Lansingh (AMR)
Andrea Zin (AMR)

Editor, SA Edition Kriti Shukla

Design Neha Vaddadi

Online edition and newsletter

Astrid Leck web@cehjournal.org

Consulting Advisors for Issue 110 of the South Asia Edition

Thulasiraj Ravilla and Usha Kim

South Asia Editorial Board

Allen Foster
Damodar Bachani
Thulasiraj Ravilla
Rajiv Raman
Rohit C Khanna
Asim Sil
GVS Murthy

South Asia Advisory Committee

Allen Foster	Sanduk Ruit
Hans Limburg	BR Shamanna
Elizabeth Kurian	K Vishwanath
Sara Varughese	M Babar Qureshi
Muhit Mohammad	Prabhat Piyasena

In Bangladesh, India, and Sri Lanka, most of these tasks are included in the training given to the AOPs. However, these AOPs are not allowed to work independently and prescribe drugs.

In Sri Lanka and Bangladesh, the training programmes for AOPs and optometrists are not recognised by government. Also, there is no accreditation nor any regulatory body for the purpose. In India, AOPs are trained on the basis of need. There is no uniform training curriculum or monitoring by any regulatory body. However, the country is in the process of considering these aspects under the proposed 'Allied and Healthcare Professions Bill, 2018'.

In the Maldives, where ophthalmologists and optometrists generally render the eye care services, there are no ophthalmic assistants or AOPs.

The Nepal Health Professional Council, set up by the government of Nepal, has issued the code of ethics and job description, to regulate the training programme for AOPs and their tasks across the country.

In Bhutan, the government recognises the importance of AOPs and is in the process of forming a regulatory body under the ministry of health.

With the effective utilisation of AOPs in Nepal, the productivity of ophthalmologists has gone up. Approximately 200 active ophthalmologists perform more than 300,000 cataract operations every year. The expansion of vision assessment and refraction services to all 77 districts of the country can be credited to AOPs.

Although AOPs have proven to play an important role in efficient eye care service delivery in most South Asian countries, some challenges still need to be addressed:

- the absence of a proper body within the governments to ensure the quality of training, monitoring, and accreditation system for ongoing training programmes
- absence of a uniform code of ethics, job descriptions and training curriculum
- lack of defined career pathways for AOPs



Figure 2 An ophthalmic assistant performs refraction, in Nepal Eye Hospital, KATHMANDU NEPAL

- absence of a professional body for human resources, at this level.

AOPs have always demonstrated their importance in eye care and can play a significant part in achieving the universal eye health coverage, as suggested by WHO. AOPs must be formally recognised, and their functions regulated in all the countries of South Asia.

References

- 1 U Kim. Role of Mid-Level Ophthalmic Paramedical staff (MLOPS) in Developing countries. WOC-2006, Madurai, 2006.
- 2 P. H. Update. Certificate in Ophthalmic Science- CTEVT [Online]. Available: <https://publichealthupdate.com/certificate-in-ophthalmic-science-ctevt/>.

Address for subscriptions

Community Eye Health Journal South Asia, Indian Institute of Public Health, Plot no.1, ANV Arcade, Amar Co-operative Society, Kavuri Hills, Madhapur, Hyderabad - 500033, India.
Tel +91-40-49006000
Email editor@cehjsouthasia.org

Correspondence articles

We accept submissions of 800 words about readers' experiences in eye health. Contact:
editor@cehjsouthasia.org

Published by the International Centre for Eye Health, London School of Hygiene & Tropical Medicine.

Unless otherwise stated, authors share copyright for articles with the Community Eye Health Journal. Illustrators and photographers retain copyright for images published in the journal.

Unless otherwise stated, journal content is licensed under a Creative Commons Attribution-NonCommercial (CC BY-NC) license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial purposes, provided that the copyright holders are acknowledged.

ISSN 0953-6833

Disclaimer

Signed articles are the responsibility of the named authors alone and do not necessarily reflect the views of the London School of Hygiene & Tropical Medicine (the School). Although every effort is made to ensure accuracy, the School does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the School in preference to others of a similar nature that are not mentioned. The School does not endorse or recommend products or services for which you may view advertisements in this journal.

The Community Eye Health Journal is supported by:



South Asia Edition supported by:





Asela Abeydeera
President:
Association of
Community
Ophthalmologists of
Sri Lanka.

Growing demand for nursing in eye care in Sri Lanka

Sri Lanka is in need of a policy framework and a firm action plan to increase the number of trained ophthalmic nurses.

Sri Lanka is an island nation in the Indian Ocean, with a population of 21.5 million. It is identified as the fastest ageing nation in Southeast Asia. By the year 2050, one-third of the population in the country will be over 60 years of age.¹ The prevalence of blindness among people over 40 years of age in Sri Lanka is 1.7%, and that of low vision is 17%. Over 150,000 people are estimated to be blind, and a further 1.5 million are estimated to have low vision.² The ophthalmic services available are insufficient to address the eye care needs of Sri Lanka's population. The unavailability of local eye care services and the long distances people have to travel to seek eye care are significant barriers to access.

Ophthalmic nursing has become an important component of eye care globally, as it contributes towards the qualitative and quantitative improvement of the care provided. The roles and responsibilities of ophthalmic nurses vary from country to country.³ In some countries, they are engaged in health promotion, prevention and intervention, while other countries have restricted their services.

The history of nursing in eye care in Sri Lanka starts in the early years of the last century, with the establishment of Colombo Eye Hospital in 1905. Most ophthalmic nurses in Sri Lanka work at eye hospitals and clinics.

There are three main eye health sectors in Sri Lanka where ophthalmic nursing is practiced:

- 1 Government and semi-government eye hospitals and eye units (Free-of-cost service)
- 2 Charity, partial charity, and not-for-profit eye hospitals
- 3 Private sector eye hospitals and departments.



A nurse attends to a patient at Lions Eye Hospital, Ratnapura SRI LANKA

However, there are no specific ophthalmic nurse training programmes within the ministry of health. Nurses in the first sector are trained at government general nursing schools operated by the ministry of health and at the government universities in Sri Lanka.⁴ The diploma course takes two years, and the degree course takes three years. However, the nurses gain limited knowledge in eye care during their studies, as just two weeks are allocated to eye care.

Following graduation, nurses are posted to different hospitals. Those who are posted to eye units and eye hospitals receive hands-on training in addition to a few workshops conducted at their centres or at a central level. The type of training they receive, e.g., eye clinic practice, operating theatre procedures, or ward work, largely depends on their place of work. Structured continuing medical education programmes and postgraduate training in ophthalmic nursing are still not available in the country.

Nurses for the not-for-profit and private hospitals are trained in the nursing schools operating under the private sector. These institutions recruit nurses with a certificate in nursing, such as a diploma, and not a degree. They train them in-house, according to the requirements of the hospitals.

Ophthalmic nurses take on various roles, such as:

- nursing manager or nursing sister
- eye clinic nurse
- operating theatre nurse
- ward nurse
- some nurses are given particular tasks, such as health education, infection control, community work, etc.

Colombo National Eye Hospital is the largest eye care centre in Sri Lanka, with over 400 beds. As a centre of excellence, the hospital caters to the whole country through different ophthalmic sub-specialities. Over 150 nurses are employed at this hospital, which has a very high volume of patients. There are over 50 smaller



Figure 2
Nurses at Lions Eye Hospital in Colombo. SRI LANKA

eye units across the country, they are affiliated to government hospitals, and have fewer nurses assigned to them.

Ophthalmologists have noticed that the nurses have limited knowledge and training in anatomy, physiology and ophthalmic pharmacology. Therefore, the College of Ophthalmologists of Sri Lanka conducts periodic training and orientation programmes for them. The institutes for the nurses in Sri Lanka also conduct short refresher education programmes in clinical nursing. Despite these efforts, there is still a need for a structured postgraduate education in ophthalmic nursing in Sri Lanka.

There are five non-governmental charity hospitals for eye care in Sri Lanka (operated by Lions Club and HelpAge Sri Lanka), and dozens of private hospitals. All these institutions provide secondary and tertiary level eye care. Eye hospitals operated by Lions Clubs are involved in running occasional community eye care programmes, usually in remote areas. They use nurses as screeners and counsellors.

Overall, the available human resources in eye care are not sufficient to cater to the needs of the nation. In this context, the role of an ophthalmic nurse as a primary eye care worker is vital. As part of the VISION 2020 programme, during its early years, training and orientation programmes were conducted for public health midwives (PHM) in Sri Lanka.⁵ Since PHMs are grass-root level health care workers, and are mainly involved in maternal and child health, they find it difficult to cope with the extra responsibilities assigned to them, including eye care.

The need for dedicated primary eye care workers/nurses is well recognised. Successful primary eye care models need to be initiated to meet the growing need for eye care services in rural areas. Similar successful models are practised in other countries. For example, Aravind Eye Care System in India has proved the efficiency of utilising ophthalmic nurses at their vision centres. Rwanda showed encouraging results by engaging trained ophthalmic nurses in primary eye care.⁶ During recent years, the ministry of health of Sri Lanka has started the exercise of assigning nurses to public health institutions, but without incorporating any specific eye care component.

The following measures are highly recommended for Sri Lanka, with regard to clinical and community-based ophthalmic nursing services, in order to achieve better eye care services, and make them accessible to all:

- Advocate for policy regarding the importance of nursing in eye care and nurses' potential to improve eye care service delivery.
- Increase the number of nurses recruited in the government sector.
- Include primary eye care as an essential component in nursing curricula.
- Develop and deliver hands-on training in relevant areas in ophthalmology that the nurses can use in their jobs. This can be in-service training or continuing medical education-type learning processes.



Figure 3 An eye camp in the district of Badulla. **SRI LANKA**

- Recruit adequate number of trained ophthalmic nurses at primary health care institutions.
- Establish an effective referral system, initiated from the community eye nurse to the secondary and tertiary level eye care service providers.
- Follow up patients who need long-term care with the help of community eye nurses. Use a dedicated mechanism to do so.

References

1. Asian Development Bank. Growing old before becoming rich, challenges of an ageing population in Sri Lanka <https://www.adb.org/sites/default/files/publication/557446/aging-population-sri-lanka.pdf> (accessed March 25 2020).
2. Palitha Gunarathna Mahipala et al. National Survey on Blindness Visual Impairment Ocular Morbidity and Disability in Sri Lanka. A report 2014-2015.
3. Rebecca Antwi. Ophthalmic Nursing: Importance and challenges. Published online May 12, 2017, <https://www.iapb.org/news/ophthalmic-nursing-importance-and-challenges/> (accessed March 25 2020).
4. Official website of Faculty of Nursing, the University of Colombo <https://nursing.cmb.ac.lk/nursing-education-in-sri-lanka/> (accessed March 24 2020).
5. A Pubudu De Silva. Contribution of public health midwives to better health in rural communities in Sri Lanka. Published online. <https://www.who.int/workforcealliance/forum/2011/hrhawardscs28/en/> (accessed March 25 2020).
6. Yip, J.L.Y., Bright, T., Ford, S. et al. Process evaluation of a National Primary Eye Care Programme in Rwanda. BMC Health Services Research 18, 950 (2018). <https://doi.org/10.1186/s12913-018-3718-1>.



Mohammed Gowth Amanullah

Senior Faculty: Lions Aravind Institute of Community Ophthalmology (LAICO), Aravind Eye Care System, Madurai, Tamil Nadu, India.



Golam Mostafa

Director, Professor and Line Director: National Eye Care, National Institute of Ophthalmology, Sher – Bangla Nagar, Dhaka, Bangladesh.



Sathi Raha Bhodendranath

Vision technician: Community Vision Centre –Upazilla Health complex, Lohagara Bangladesh.

Ophthalmic nurses in vision centres in Bangladesh

Bangladesh has adopted a structured approach to train general nurses as vision technicians, in order to address the shortage of trained eye care professionals in rural areas.

In Bangladesh, eye care services are provided by the government, private hospitals, and local and international non-governmental organisations. However, access and coverage are still inadequate, as most ophthalmologists are located in urban areas, whereas 63 per cent of the country's population resides in rural areas. The current cataract surgical rate is 1,950 while the rate needed to address the backlog as well as new (incident) cases is estimated at 6,000. The Cataract Surgical Rate (CSR) is defined as the number of cataract operations done per million population per year.

Bangladesh requires a robust, scalable, and innovative solution to meet the need for cataract surgery and other eye services in the country. The health ministry therefore adopted a model developed by the Aravind Eye Care System. Under the model, trained ophthalmic personnel at the institute's telemedicine enabled vision centres (VCs) will offer eye care services at the primary level.

Government's role

The government decided to integrate primary eye care in the portfolio of primary health care services by setting up community vision centres. After making the necessary budgetary allocation, the government appointed a senior team consisting of the Director: National Institute of Ophthalmology, senior ophthalmologists, and heads of teaching hospitals in Bangladesh, to visit Aravind Eye Hospital in India. The team studied Aravind's Vision Centre model in detail and developed a strategic road map for implementing a similar model in Bangladesh.

The roadmap

The team decided to set up the first 20 community vision centres around a government tertiary eye hospital which would provide teleconsultation services, provide surgery, advanced investigations, and treatment to patients referred by the community vision centres. The team also decided that the community vision centers should be established in Upazila health complexes. Upazila refers to the third administrative level in Bangladesh and each of these covers a



Map of Bangladesh showing the locations of various vision centres. BANGLADESH

population of 100,000 – 200,000 people. The plan is to have a vision centre in each of the 500 Upazilas eventually.

Bangladesh has sufficient general nurses trained, available, and are working in various Government health care facilities. Hence, the team decided to select and train general nurses as vision technicians to work at the vision centres. The selection criteria, although strict, was designed to maximise staff retention. Nurses had to:

- live near the Upazila health complex
- be willing to learn new skills and switch to a career in ophthalmology
- be aged between 25 and 40 years.

Training

The nurses who were selected had to undergo two months of intense training at the National Institute for Ophthalmology in Bangladesh. This covered:

- basic eye care
- anatomy and functions of the eye
- handling of basic ophthalmic equipment
- visual acuity measurement
- subjective refraction
- identification of common eye conditions.

After training the nurses were assessed for their knowledge and skills. This was followed by a 45-day intense training programme at Aravind Eye Hospital, the mentoring institute and its vision centres. This program provided hands-on training in the following areas:

Ophthalmic skills

These included visual acuity measurement, subjective refraction, retinoscopy, slit lamp examination, tonometry, identifying common eye conditions, fundus photography, ocular pharmacology, and treatment options for different eye conditions.

Table 1 Performance up to December 2019

Base hospital	Months of operation (since)	No of CVCs	Population covered	New out patient visits	New out patient to population coverage	Review out patient visits	Total out patient	Average per day
SFMEHTI, Gopalganj	16 (Aug 2018)	20	3,853,000	1,03,686	2.7%	5,702	109,388	18
MC, Rajshahi	9 (Apr 2019)	15	3,443,475	36,176	1.1%	1,991	38,167	15
MC, Rangpur	9 (Apr 2019)	15	3,981,071	33,307	0.7%	1,143	34,450	13
Total		50	11,277,546	173,169	1.5%	8,979	1,82,005	21

Now 7% of Bangladesh's population has permanent access to eye care

Information technology

This focused on the use of electronic medical records, and teleconsultation between patients and ophthalmologists at the base hospital.

Patient engagement

Counselling to enhance compliance with treatment.

Management

Managing supplies, equipment maintenance and generate reports.

The mentoring team at Aravind assessed nurses' new skills. On their return to Bangladesh, the newly qualified vision technicians then returned to the National Institute of Ophthalmology to continue learning and practising their skills until the first vision centres were launched.

Launch of community vision centres in Bangladesh

A team from Aravind Eye Hospitals, comprising the programme manager, vision technicians and an IT expert, worked closely with the team in Bangladesh, to set up the first 12 community vision centres. This helped to iron out first issues and ensured the smooth functioning of the community vision centres.

To build a cohesive working relationship between the vision technicians and the ophthalmologists at the tertiary hospital, both groups were invited to attend a workshop at the tertiary eye hospital, where the speakers emphasised the importance of the community vision centres and the vital role they play in extending effective eye care services to the rural population of Bangladesh.

Services delivered at community vision centre

- Carrying out comprehensive eye examination supported by teleconsultation with ophthalmologists.
- The Vision Technicians offer the services like dispensing spectacles and medicines as per e-prescription from ophthalmologists.
- Those requiring cataract surgery or advanced care are referred to the hospital.

Currently, there are 50 community vision centres in Bangladesh. Twenty are linked to a tertiary eye hospital (Sheikh Fazilatunnessa Mujib Eye Hospital and Training Institute), and 15 each are linked to two medical colleges (Rajshahi Medical College and Rangpur Medical College).



From the field

Sister Sathiraha Bhodendranath is a general nurse who underwent intense training to become a vision technician at one of Bangladesh's 50 community vision centres.

"I was working as a staff nurse in Upazila health complex in Lohagara, Khulna when I applied to train as Vision Technician. I have always wanted to help people to regain their eyesight, so I was very motivated! The fact that vision technicians do not work night shifts was also very attractive.

The interviews were very competitive, so I was delighted to be one of the first group of 20 nurses selected to attend the initial training at the National Institute for Ophthalmology (NIO).

The shift from general nursing to ophthalmology was very challenging in the beginning. The two months of training at NIO boosted my confidence, and subsequent practical training at Aravind, with the continuous feedback they offered, really helped me to master the required skills.

I now see 20 to 25 patients per day, on my own; it is very satisfying work! The number of outpatients that come to us is increasing steadily, and the positive feedback from our patients is a motivating factor. The highlight of my career as a vision technician was when I demonstrated the vision centre model at the Digital Bangladesh Mela in 2020 with my colleague Mrs Smirti. We won an award at this Mela. I am working now as a vision technician in the community vision centre at Lohagara."



Asim Sil
Medical Director:
Netra Niramay
Niketan, West
Bengal, India.

Eye care for the people by the people: a case study from the Sundarbans

Eye care service delivery in the Sundarbans of Bengal is an inspiring story in which concerted efforts involving training and participation of local resources led to a significant reduction of avoidable blindness.



Reaching out to the islands. SUNDARBANS

The Sundarbans is a unique geographic area that is home to the world's largest mangrove forest and the Royal Bengal Tiger. Spread along the border between India and Bangladesh, the Indian section of the Sundarbans falls within the districts of North 24 Paraganas and South 24 Paraganas in West Bengal and consists of 106 islands; 52 of which are inhabited. Most islands are accessible by boat only, which makes life very challenging for the 4.7 million people who live in the Sundarbans. Nearly half of the population (47%) belong to the most marginalised groups in India: the Scheduled Casts and Scheduled Tribes. Over 40% of households live below the poverty line, and 13% come under the category of the 'poorest of the poor'.²

Extreme levels of poverty and the challenging terrain limit access to health care and education. Many people are migrating to cities and towns for work due to shortage of job opportunities in the region. The insufficient number of health care providers is further adding to the woes of the Sundarbans.

Organising eye care in the Sundarbans

Any region with inherent geographical access barriers and socio-economic deprivation faces immense challenges in health care delivery. The Sundarbans is no exception in this context. However, the island network had an opportunity to improve this situation when Standard Chartered Bank came forward to support eye care services in the region. As a part of its 'Seeing is Believing' initiative, the bank supported the Sightsavers to implement, 'Sundarbans Eye Health Service Strengthening Project' in West Bengal. The objective of the five-year project, 2014-2018, was to contribute to the elimination of avoidable blindness in the area. Sightsavers partnered with the government and three non-government organisations to implement the project.

Developing human resources

The core strategy of the initiative was to use locally available human resources to strengthen eye health services in the region. This was important because health professionals from outside the region were less likely to stay in those difficult conditions. The initial plan was to appoint qualified optometrists from outside the Sundarbans, but after analysing the ground realities, local young people were selected for training as Vision Technicians (VTs) and community health workers (CHWs).

The main challenge was the availability of suitable local candidates for the job. The local social organisations played an important role in identifying suitable candidates. The minimum eligibility for the position of VTs and CHW was high school class 12 and class 10, respectively. The total training period for VTs was one year; for CHWs, it was three months. A recognised training institute, a partner hospital, imparted this training.

The training covered awareness of common eye diseases and eye care workers' role in the management. It also covered counselling and outreach work. The trainers ensured that the VTs were well trained in retinoscopy for refraction. As a part of the project a baseline population based survey was conducted to assess the magnitude of blindness and visual impairment. All the newly trained VTs and CHWs participated in conducting the fieldwork. This helped them in understanding the ground realities of the service area.

Six months after the start of the program, more candidates had to be recruited and trained, as some candidates had left before completing their course.

Table 1 Baseline survey results at the start of project (in 2014) and in 2018, five years after the vision centres became operational.

Indicators	2014 baseline values	2018 end line values
Prevalence of blindness bilateral best-corrected vision (age and sex adjusted)	Aged 40+: 1.5%	Aged 40+: 0.7%
	Aged 50+: 2.4%	Aged 50+: 1.3%
Cataract surgical coverage (person, in sample)	3/60: 75.0%	3/60: 86.3%
	6/60: 49.6%	6/60: 55.5%
The extent of coverage of eye health services within the project area (access to near glasses)	46.2%	60.3%

Service activities

In total, 17 VTs were trained and then deployed to 17 vision centres in the region that had been established as part of the project. The VTs performed refraction and provided spectacles at an affordable cost. They also detected cataract and other conditions, and referred patients to hospitals run by the government or by non-governmental organisations. These centres provided spectacles to beneficiaries at an affordable cost. CHWs assisted the VTs in the mission.

An ophthalmologist from the base hospital visited the vision centres once in a month to attend to the referral patients and support the VTs and CHWs in various activities such as refining clinical skills, meeting local community etc. The VTs and CHWs also raised awareness of eye health by talking to people and offering one-to-one counseling and health education. Over some time, they came to be seen as a reliable source of information for the local community.

The hospitals organised eye screening camps in the remote villages inside the islands of Sundarbans, and held school eye examination near the vision centres with the help of VTs and CHWs. The CHWs distributed free spectacles to children who were identified through school screening and refracted at the vision centres. People who needed cataract operations were taken to the base hospital, in groups by hospital vehicles, and the follow-up was arranged at the vision centre. This entire service was offered free of cost to patients.⁴

Training other health care workers

Training other groups of health care providers was a significant component of the project. The group included 1,467 Accredited Social Health Activists (ASHAs) and Auxiliary Nurse Midwives (ANMs) who operate at the grassroots level in the government health system. Also 2,380 Rural Medical Practitioners (RMPs) were included. RMPs are important health providers in remote areas. 3,585 health ambassadors, 70 paramedical ophthalmic staff, and 2,349 school teachers were given orientation programme in primary eye care. These personnel, in turn, worked closely with VTs and CHWs.

Assessing the impact - comparing baseline with the endline survey results

A population-based eye health survey was conducted in the Sundarbans in 2014, at the start of the project, to assess eye health status and health-seeking behaviour of the people in the region. The participants were individuals aged 40 years and above. As part of the survey, it was found that cataract and uncorrected refractive error were the leading causes of blindness and visual impairment. About 75.2 per cent of the sample had presbyopia, while less than half (46.2 per cent) had access to near vision spectacles. Of the remaining population, more than half (54 per cent) did not even realise that they needed spectacles.⁵ These findings played an important role in strategic planning. The population-based survey was repeated in the same area, towards the end of the project in 2018, applying the same methodology. The key findings are summarised in table 1.

The results of the study indicate good progress in eye care in the Sundarbans, with improved coverage and quality of eye health services. Gender differences were not statistically significant.⁶

Conclusion

For reaching out to the people residing in difficult geographical terrains, the local human resources are always the best choice to engage, in terms of their acceptance and effectiveness. Moreover, proper selection of candidates, good training and support can bring more success. The VTs are the face of the hospital or any programme in the community. The commitment levels of the VC staff and the quality of their services determine the success of the respective units. Retaining trained and efficient human resources continues to be a big challenge. The effective strategy lies in conducting continuous training for VTs to enhance their competencies and refining institutional policies in favour of retention. Periodic visits by senior staff from the base hospital can strengthen the relationship as well as improve the quality of service. The capacity building of local people indeed brings a sustainable change in health care. After the completion of the project the vision centres are being run by the local eye health workers under the management of respective partner hospitals.

References

- 1 Development and Planning Department, Government of West Bengal. District Human Development Report: South 24 Parganas. October 2009.
- 2 Kanjilal B et al. Health care in the Sundarbans (India), challenges and plan for a better future. Future Health System Research Programme; January 2010 www.futurehealthsystems.org.
- 3 De Dipanwita. Spatial Inequality in Health Care Infrastructure in Sundarban, West Bengal, India. International Research Journal of Social Sciences December 2014; Vol. 3 (12) 15 -22
- 4 Sil A. Reaching the unreached in Sunderbans. Community eye health. 2016; 29(95):S10.
- 5 Jolley Emma, Mohanty Soumya. Eye health in the Indian Sunderbans: an Endline Study. 2018; Sightsavers UK and India
- 6 Jolley Emma, Buttan Sandeep, Abraham George; Baseline Assessment of Prevalence and Causes of Visual Impairment and Coverage of Eye Care Service Needs, Sunderbans, West Bengal. 2016; Sightsavers UK and India



Rajendra Gyawali
President: Better Vision Foundation, Kathmandu, Nepal.



Rabindra Adhikary
Master of Optometry Student: Tilganga Institute of Ophthalmology, Kathmandu, Nepal.



Himal Kandel
Kornhauser (postdoctoral) Research Associate: Save Sight Institute, Sydney Medical School, Sydney.

Allied eye health professionals in eye care services in Nepal

Despite challenges, Nepal's eye care system is witnessing significant improvement, including an increase in eye hospitals and better cataract surgical coverage.

In the last few decades, Nepal's eye care system has made remarkable progress in reducing the magnitude of blindness. Some of the achievements include:

- A decline in the prevalence of blindness from 0.84 per cent (1980) to 0.35 per cent (2019),¹
- Increased cataract surgical coverage (for people with visual acuity less than 3/60) from 35 per cent (1980) to 85 per cent (2011),² and
- The elimination of trachoma as a public health problem in 2019.³

From just one eye hospital in 1980, Nepal today has more than 40 secondary and tertiary hospitals, ophthalmic departments and more than 100 district and community eye care centres. The last three decades also witnessed significant progress in the development of the eye care workforce, making the country self-reliant in most of the human resources for its eye care services.³ Allied eye health professionals have played a major role in these achievements.

The WHO Global Action Plan 2014–19 recognises a range of health care professionals as allied ophthalmic personnel.⁴ Ophthalmic assistants/technicians, ophthalmic nurses, opticians, and ophthalmic photographer/imagers are the major allied health personnel in Nepal's eye care system. Nepal also has optometry technicians, orthoptists, vision therapists, ocularists and dedicated ophthalmic administrators, but in limited numbers.



Allied eye care professionals are engaged in the outreach eye camps in remote communities in Nepal. **NEPAL**

BETTER VISION FOUNDATION NEPAL

Ophthalmic assistants

Ophthalmic assistants (OAs) form the backbone of the rural eye care structure in Nepal, where the services of ophthalmologists and optometrists are not sufficient to meet the need. Since 1981, over 1,000 OAs have been trained to assist ophthalmologists in outpatient departments, operating theatres and community outreach camps.³ Their training included identification and management of common eye conditions and refractive errors. They also work as facility managers in the district and community eye centres. These are usually situated within the district headquarters, especially in the remote, mountainous regions, or community eye centres especially in remote, mountainous regions.

Opticians

It is estimated that about 350 formally trained opticians and an equal number of unregistered, informally trained dispensers are providing spectacle dispensing services in various outlets, mainly in urban areas and southern plains of the country.

Ophthalmic nurses

An estimated 120 ophthalmic nurses currently serve in eye hospitals and eye departments, assisting ophthalmologists in operating theatres and pre- and post-operative care. Ophthalmic nurse training is not available in Nepal, and the hospitals recruit general nurses, who gain in-service exposure to become ophthalmic nurses.

Other allied eye care personnel

The ophthalmic photographers do not have a formal training programme. Currently, about 15 OAs with an exposure and experience in clinical photography are present at major eye hospitals. Similarly, an estimated

Figure 2 An ophthalmic Assistant performs refraction in a school student in a community eye centre.



REVIJUKAI EYE HOSPITAL



Figure 3 Most opticians in the rural areas rely upon manual edger for spectacle fitting.

RAGINDRA ADHIKARY

20 orthoptists (ophthalmic assistants trained for a year) work at different tertiary eye hospitals. With the availability of hospital management training in the country, the number of eye hospitals run by trained managers or administrators is gradually increasing.

In addition to these personnel, 'eye workers' provide supporting roles at hospitals and eye care centres across the country. The training for these workers is not standardised, and are based on the needs of the eye hospitals.

Challenges

- Equitable distribution of the workforce is one of the major challenges faced by the allied eye care personnel. For example, the Karnali province, the least developed regions in Nepal has 17 OAs (1 OA per 90,000 people) compared to 210 (1 OA per 30,000 people) in Bagmati province. A similar pattern is likely for opticians and other allied eye care personnel.
- There are concerns about the retention of these professionals. Of the 1,025 registered OAs, only 625 are estimated to be active in the eye care sector. Factors such as poor job satisfaction, low salary and other incentives, lack of career growth, and an inappropriate match between the skills they have and those that the job demands may be responsible for demotivation and high attrition.
- Insufficient government involvement in eye care services has also led to fear about job security among all levels of the ophthalmic workforce.
- Training programmes for several of these personnel are not available in the country, and the programmes (e.g., optician and orthoptists) that are available are sporadic and lack standardisation.

Opportunities

Despite these challenges, several opportunities exist to maximise the contribution of the allied ophthalmic personnel to eye care in the rural areas of Nepal. The National Ophthalmic Health Policy 2017 envisages integration of primary eye care into the existing primary health system, although this has not yet been implemented. The changing trend in eye diseases presents further opportunities for these personnel in primary eye care. Whereas cataract and refractive errors are major causes of vision impairment, the rising burden of diabetic retinopathy, glaucoma and other age-related eye diseases demands mobilisation of allied health personnel in awareness creation, early detection and primary prevention activities in an integrated health system. It is also encouraging to note that new training opportunities are being standardised for opticians.

Conclusion

Allied ophthalmic personnel in Nepal have made a significant contribution to eye care services. However, their reach to the rural areas beyond district headquarters, is limited due to lack of integration into the existing primary health care system. Government job opportunities, standardised training, career opportunities, and incentives can help address the inequitable distribution and concentration of these personnel in urban regions. Further investigation is required to understand the effectiveness and impact of these professionals, as well as the factors associated with their recruitment and retention within the country's eye care sector.

References

- 1 Nepal Netra Jyoti Sangh. Epidemiology of blindness: RAAB survey report. 2012 <http://nnjs.org.np/> [accessed 20 January 2020]
- 2 International Agency for the Prevention of Blindness (IAPB). Nepal eliminates trachoma <https://www.iapb.org/news/nepal-eliminates-trachoma/> [accessed 22 January 2020]
- 3 Singh SK, Thakur S, Anwar A. Nepal: self-reliant in ophthalmic human resources. *Community eye health*. 2018; 31(102): S9.
- 4 World Health Organisation. Universal eye health: A global action plan 2014-2019. 2013 <https://www.who.int/blindness/actionplan/en/> [accessed 18 January 2020]



Usha Kim
Director – Mid-level
Ophthalmic Personnel:
Aravind Eye Care
System, Madurai,
India.



Dhivya Ramasamy
Senior Faculty, LAICO:
Aravind Eye Care
System, Madurai,
India.

How can we make the most of allied health personnel?

Worldwide, allied ophthalmic personnel have become the most critical resource in delivering effective eye care. It is imperative to impart relevant training, set up standard operating procedures, and deploy robust technology to help people who are blind or partially sighted.



An AOP trains her team. INDIA

SATHISH/ARAVIND EYE CARE SYSTEM

Allied ophthalmic personnel make up a vital part of the eye care workforce, as highlighted by the World Health Organization (WHO) Action Plan 2014–2019. According to WHO, opticians, ophthalmic nurses, orthoptists, ophthalmic and optometric assistants; ophthalmic and optometric technicians, vision therapists, ocularists; ophthalmic photographer/imagers, and ophthalmic administrators are collectively known as allied ophthalmic personnel. South Asia faces a severe shortage of AOPs despite having a higher prevalence of blindness, in comparison with several other regions of the world.

The role of allied ophthalmic personnel becomes crucial when there is a shortage of ophthalmologists. A well-trained person can enhance the efficiency, productivity and quality of eye care teams. Without them, eye programmes would suffer from low productivity, increased costs, and a lack of consistency in the delivery of quality eye care.

In this article, we consider ways to maximise the contribution of allied ophthalmic personnel.

Training should be relevant

When designing a training curriculum, it is important to consider the tasks allied ophthalmic personnel may be expected to carry out (whether in the community or in a clinic) and to teach the specific competencies

they require. It is equally important to focus on the aspect of attitude, alongside the skills and knowledge being imparted to trainees.

We strongly advise carrying out a competency-based assessment at the

end of training to ensure that trainees are ready to take up their role in the eye health workforce.

Standard operating procedures

It is crucial to draft standard operating procedures (SOPs) to minimise inconsistencies in the eye care. The SOPs, or work instructions, provide a great deal of clarity and guidance to allied ophthalmic personnel, allowing them to work effectively and safely to provide high quality care. They also help in delivering a higher quality of care. SOPs must be drafted with the involvement of AOPs, as it ensures that the details of each task are also standardised. Though some of these are classified as general tasks, some have to be linked explicitly with the institution.

Part of a team

Allied ophthalmic personnel must be deployed according to need, and their skills should align with the duties they are expected to perform. The skill set of AOPs should align with the duties they are expected to perform. AOPs often work as part of a team; hence, their roles should be clearly defined within the context of their teams. At eye clinics that carry out comprehensive eye examinations, shifting the responsibility for carrying out routine tasks to allied ophthalmic personnel will help ophthalmologists work more efficiently, allowing them to be deployed more effectively. Proper execution of 'task-shifting' depends on the competency levels of the ophthalmic personnel.

Ocular emergency management

Allied ophthalmic personnel should be trained to efficiently provide the first-level care for ocular emergencies, such as foreign bodies, lid lacerations, corneal injuries and chemical injuries. At the primary levels of care, where ophthalmologists are usually not available in sufficient numbers, the role of these personnel becomes vital. They should be taught when and where to refer patients that require further intervention. (See table 1)

Figure 2 AOP staff taking fundus photographs.



RAJ KUMAR/ARAVIND EYE CARE SYSTEM

Table 1 shows different tasks and skills that could be performed by ophthalmic personnel.

In a general ophthalmology clinic:		
Trained AOP can take part in the following basics tasks:	Higher-order skills that can be acquired by trained AOPs:	Allow ophthalmologists to concentrate on these tasks:
<ul style="list-style-type: none"> • Taking systemic and ocular history • Visual acuity measurement • Pupillary assessment • Refraction • Intraocular pressure measurement • Keratometry • Patient counselling • Spectacle and contact lens dispensing • Preparing patients and assisting for surgery • Sterilisation 	<ul style="list-style-type: none"> • Preliminary examination • Patient triage • Visual field test • Optical coherence tomography • Applanation tonometry • Biometry • Dispensing low-vision aids • Rehabilitation counselling • Ophthalmic imaging 	<ul style="list-style-type: none"> • Detailed examination • Diagnosis • Prescription writing • Minor and major procedures • Surgeries

Higher-order skills

Allied ophthalmic personnel can also be trained and deployed to perform more specialised tasks, such as dispensing low vision aids, rehabilitation, counselling caregivers of paediatric patients, and making ocular prosthesis. These functions offer new opportunities for career advancement. Training has to be intensive with sufficient practice under supervision, until candidates are certified as competent and qualified. Experienced personnel can also be deployed to supervise and train their team members.

Equipment and instruments

It is essential to empower allied ophthalmic personnel with the instruments needed to carry out their functions well. These instruments should be in good working condition. According to WHO statistics, in developing countries and rural areas, more than 50% of the ophthalmic instruments and equipment are not functional. Dysfunctional equipment severely affects the performance of ophthalmic teams. In order to provide quality eye care services, it is essential to maintain equipment in the proper condition. With the right training, allied ophthalmic personnel can be effective in the day-to-day care and maintenance of equipment and instruments, including being able to fix common problems.

Leveraging technology

Several new technologies are now available to help allied ophthalmic personnel to perform their tasks faster and with better accuracy. Eye institutions should familiarise themselves with new developments and invest in technologies, as required. For instance, a lensometer helps opticians determine the refractive power of a lens, faster than manual lens neutralisation methods. New technologies and mobile applications also improve speed and quality, significantly reducing training

time. For example, personnel can use mobile applications such as Peek Acuity in screening. With health information management systems, mobile applications offer cheaper and portable alternatives that may be easier to use.

Today, technology can perform specific tasks that were traditionally performed by trained eye health personnel. For example, autorefractors have been shown to measure refractive errors as effectively as someone who is trained in performing refraction. These tools are simple to operate, with basic instructions, and do not require extensive training. They also play a vital role when there is a shortage of human resources for eye health.

The advent of telemedicine has brought significant gains, as it is now easier to deploy the allied personnel in remote and rural areas. Telemedicine has helped to establish an interface between patients, allied ophthalmic personnel, and ophthalmologists; thereby enhancing access to eye care. In recent years, telemedicine has also been augmented with digital imaging and artificial intelligence. Technology not only enhances the scope of services allied ophthalmic personnel can offer at the primary level, but also increases the productivity of ophthalmologists at the tertiary level.

Allied ophthalmic personnel are essential members of any eye team. It is imperative to provide them with appropriate training and clarity about their role so they can deliver high-quality eye care effectively. With the proper deployment, supported by technology, these personnel can be highly productive. In the process, it is also important to systematically identify the factors that reduce their effectiveness, and address them through continuous improvement and innovation.

References

- 1 <https://atlas.iapb.org/wp-content/uploads/IAPB-Vision-Atlas-AOPs-Boxplot-v2.pdf>. Allied Ophthalmic Personnel per million population Oct 2017; IAPB Vision Atlas <https://atlas.iapb.org/global-action-plan/gap-implementation/gap-implementation-eye-health-workforce/>
- 2 Bourne RRA, Flaxman SR, Braithwaite T, Cicinelli MV, Das A, Jonas JB, Keeffe J, Kempen JH, Leasher J, Limburg H, Naidoo K, Pesudovs K, Resnikoff S, Silvester A, Stevens GA, Tahhan N, Wong TY, Taylor HR; Vision Loss Expert Group. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. *Lancet Glob Health*. 2017.
- 3 Daksha Patel, Suzanne Gilbert. Investment in human resources improves eye health for all. *Community Eye Health*. August 2018; Vol. 31, No. 102.
- 4 Sunita Arora, Umang Mathur, Parul Datta. Competency-based assessment as a reliable skill building strategy for allied ophthalmic personnel. *Community Eye Health*. 23 August 2018; Vol. 31 No. 102.
- 5 Patel D, Mercer E, Mason I. Ophthalmic Equipment Survey 2010: preliminary results. Sep 2010; *Community Eye Health*.
- 6 Durr NJ, Dave SR, Lim D, Joseph S, Ravilla TD, Lage E. Quality of eyeglass prescriptions from a low-cost wavefront autorefractor evaluated in rural India: results of a 708-participant field study. *BMJ Open Ophthalmol*. 2019 Jun 14; 4(1): e000225. doi: 10.1136/bmjophth-2018-000225. PMID: 31276029; PMCID: PMC6579572.



Sweta Patel
Senior Manager:
Programme Impact,
Mission for Vision,
Mumbai, India.



Prem Kumar SG
Manager –
Research: Mission
for Vision, Mumbai,
India.



Pankaj Vishwakarma
Head – Programme
Impact: Mission for
Vision, Mumbai,
India.



Elizabeth Kurian
Chief Executive
Officer: Mission for
Vision, Mumbai,
India.

Training allied ophthalmic personnel to meet India's eye care needs

A new initiative aims to train young people from disadvantaged backgrounds in India as allied health personnel.

There is a need for more skilled and competent allied ophthalmic personnel (AOP) to deliver comprehensive eye health services in India.^{1,2}

Mission Saksham is an initiative that aims to improve eye care delivery and reduce poverty by offering free AOP training to young men and women from economically vulnerable communities.

Scholarship program

Mission Saksham is supported by the Wen Giving foundation with the aim to train more allied ophthalmic personnel in India by offering scholarships to people from economically vulnerable and marginalised communities. The first phase aspires to train 2,000 candidates by 2025.

The broad objectives of Mission Saksham are to:

- 1 Strengthen the capacity of allied ophthalmic personnel in the country:
 - As of January 2021, a total of 236 (female: 160 and male: 44) students were enrolled in various ophthalmic courses at four tertiary eye care institutions in India. Periodic monitoring of the ongoing course by project staff, parameters like the attendance of the students and grades scored are used as proxy indicators of quality. Phase – II of this initiative involves collaborating with three new partner eye care institutions, to train about an additional 250 AOPs.
- 2 Standardising the teaching curriculum and training programs:
 - In the absence of a central/national accreditation body in India, it is hoped that every hospital will adopt its curriculum, examination patterns and teaching modalities. Under Mission Saksham, we looked at 35 different AOP courses across the country and found that about 80 % do not have accreditation. Efforts are underway to encourage these hospitals to obtain local accreditation for the courses.
 - Mission Saksham invests in building the capacities of partner eye care institutions in the country, including standardising of their AOP training programmes. Consequently, Mission



AOP training session for ophthalmic nurses in progress.

Saksham identified a total of 14 partner eye care institutions, and efforts are underway to build their capacities by conducting regular workshops. Efforts are ongoing, in partnership with several leading eye care centres in the country, to build institutional capacity through the development of standardised curriculum, course material, course design, and faculty training.

- 3 Empowering youth from challenging backgrounds – especially those from smaller towns and rural background.

- The potential AOP candidates to be trained are selected from economically weaker backgrounds. The identification and selection of candidates is made in partnership with the local partner eye hospital; candidates whose monthly family/household income is less than or equal to Rs. 10,000 (roughly US \$135), are given priority. About 70% of place is reserved for women candidates. Scholarships are provided to the selected candidates, to cover tuition fees, monthly stipend, free boarding and food facilities, and supplies including uniforms, books and stationery.

Initial impact and way forward

The first group of 11 AOPs completed the training in 2019 and was placed in a partner hospital. Hailing from modest backgrounds, these trained AOPs now earn between Rs. 7,000 and 10,000 (the US \$96 –137) every month, contributing additional income to their households. Also the 29 students who have graduated in the 2019–2020, have served a total of 24,600 patients in those years combined.

In future, mission for vision will identify, partner, and network with new eye care institutions, to train AOP candidates in the country.

References

- 1 Woodworth Jr KE, Campbell RC, Dean CA, DuBois LG, Ledford JK. Analysis of Tasks Performed by Certified Ophthalmic Medical Personnel. *Ophthalmology* 1995; 102 (12), 1973-86.
- 2 Arora S, Mathur U, Datta P. Competency-based Assessment as a Reliable Skill-Building Strategy for Allied Ophthalmic Personnel. *Community Eye Health*. 2018; 31 (102), S5-S6.
- 3 The Mission for Vision. Mission Saksham. The Mission for Vision, Mumbai, India. Available from: <http://www.missionforvision.org.in/mission-saksham> [Last accessed 13 February 2020].



Dhivya Ramasamy
Senior Faculty: LAICO
– Aravind Eye Care System, India.

Paving the career path for allied ophthalmic personnel

To build a formidable pool of trained allied ophthalmic personnel, retention, combined with the provision of opportunities, is vital.

The role of allied ophthalmic personnel in the effective delivery of eye care has been highlighted repeatedly.^{1,2} This underscores the importance of national-level commitment, that recognises the levels and initiatives for effective training.³ Little has been done towards advancing these personnel and training them appropriately.

Creating growth and advancement opportunities is essential to make eye care an attractive career option, and to retain trained staff members. This article explores various ways in which organisations can structure the career growth opportunities for their allied ophthalmic personnel while making the most of their potential.

Why must organisations create growth opportunities for AOPs?

It is important to offer opportunities for career development, not just to retain talented people, but also to ensure that they have opportunities to function to their fullest potential. Offering staff members a structured career path is attractive and can significantly reduce the cost of recruitment and re-training. Also, the annual performance appraisals for AOPs help evaluate their performances and offer career development opportunities. These factors motivate their peers to give their best at work and help reinforce good performances.



An AOP presents a paper at a national-level conference.

Different paths

Promoting the staff to positions of higher responsibilities would mean change in designations, along with added supervisory responsibilities.

- Promoting to more specialised areas: For instance, an AOP who typically attends to patients with cataract or refractive errors may be trained and promoted to assist in taking care of the patients with retinal disease or children with amblyopia.
- Offering opportunities to become trainers, coaches or mentors: This is relevant to the teaching institutions, where the teaching resources are precious and take time to build.
- Offering partial or full support to pursue higher education within their career track: This essentially helps in building a workforce with a high calibre combined with valuable experience. However, this may be affected by the availability of limited formal training programmes for AOPs in the region.

Case Study

Aravind Eye Hospital offers career advancement positions to AOPs who have more than three years of work experience. Those who are exceptionally good at their work are recognised as 'performers'. These staff members are also eligible for promotion as 'supervisors' (who take up leadership and supervisory roles) or as 'tutors' (who take up the role of senior trainers). The eligible candidates are assessed to see if they are fit to take up these positions – due diligence is carried out to ensure that they are suitable for the positions of higher levels of responsibilities. For instance, a 360-degree feedback is carried out to ensure that a staff member is eligible to become a supervisor. The selected candidates then receive additional training and orientation to fit into these new positions.

Also, the AOPs are provided support to pursue university programmes, such as a diploma in Ophthalmic Assisting, so that they can acquire formal recognition relevant to their work.

Harness Innovation

In addition to formal promotions and career pathways, opportunities can also be created by enhancing the enthusiasm of AOPs. These AOPs are generally efficient at their work and are keen to improve regularly. Providing opportunities for innovation and learning is an ideal way to keep them engaged better, while also harnessing innovation. Given the nature of their work, the AOP staff are at the forefront of eye care and face many ground-level problems. Often, such situations also have good ideas in store. Organisations must provide opportunities for the staff to participate more actively by coming up with ideas and suggestions, allowing experimentation and tolerating failures. When combined with good improvement science, the passion of these professionals can lead to the generation of great ideas and solutions to everyday problems.

Continues overleaf ▶



Figure 2 AOPs from Aravind providing guidance at an outreach camp in Ethiopia.

SASIPRIYA/ARAVIND EYE CARE SYSTEM

Launch entrepreneurs

The organisations empower AOP staff with entrepreneur opportunities in the field. The eye hospitals encourage trained AOP staff to run vision centres in remote and rural areas, creating a win-win situation. By providing this opportunity, the hospitals can optimise resources that would be spent in reaching out to these communities. Often, these AOP staffs hail from these regions and have a better chance of acceptance and inclusion into these regions. If appropriately empowered, these entrepreneurs can continuously improve patient volumes, uptake of surgery and glasses, and ensure compliance to treatment.

Academic opportunities

The AOPs can also identify new growth opportunities by becoming trainers and extending academic advancement. The training institutions can offer teaching roles to AOPs for internal and external training. The academic opportunities range from giving opportunities to participate in research, to encouraging presentations and participation in conferences, or may involve support to pursue higher education. The hospitals can also encourage AOPs towards participating as either learners or teachers in continuing professional education programmes.

References

- 1 Cambridge Declaration 2015; IJCAHPO, ICO, IAPB; <http://www.icoph.org/downloads/2015CambridgeDeclaration-ICO-IJCAHPO-IAPB.pdf>; last accessed 09 Sep 2020.
- 2 Cicinelli MV, Marmamula S, Khanna RC. Comprehensive eye care - Issues, challenges, and way forward. *Indian J Ophthalmol*. 2020; 68(2):316-323. doi:10.4103/ijo.IJO_17_19.
- 3 Rohit C Khanna, Thulasiraj Ravilla, Suzanne Gilbert. Strengthening eye health systems – some successful approaches. IAPB Vision Atlas; [http://](http://atlas.iapb.org/vision-trends/eye-health-systems/)

Make sure the transition is smooth

It is crucial to prepare the trainee for a new position in the right manner. Organisations often make the mistake of promoting candidates without preparing them for the new responsibilities. It is vital to ensure that proper training and orientation are given to the staff to help them succeed in their new roles. They may need to acquire new competencies, such as leadership skills. A clear job description of the new role helps in setting expectations for them. A certain amount of hand-holding during this transition period is also essential. All these must be included in the organisation's career advancement programme for AOPs.

Points to note

Opportunities in career development alone cannot guarantee retention, as there are several contributing factors.⁴ While planning these opportunities for the AOP staff, it is equally important to consider internal and external contexts. Meticulous planning and due diligence must be applied in choosing the right candidates for advancement. A formal performance appraisal, combined with career development, can be a great incentive and motivation for eye care workers.⁵

atlas.iapb.org/vision-trends/eye-health-systems/ (last accessed 09 Sep 2020).

- 4 Gilbert S, Patel D. Encouraging eye care workers to stay: the role of investment and management. *Community Eye Health*. 2018; 31(102):48-50.
- 5 Roberts H. Creating motivation, identifying incentives and enablers, and encouraging staff development. *Community Eye Health*. 2005; 18(56):122-124.

**Vaishali KV**

Fellow in paediatric ophthalmology and strabismus: Aravind eye hospital, Madurai, India.

**P Vijayalakshmi**

Professor of Ophthalmology and Chief, Department of paediatric ophthalmology and adult strabismus: Aravind eye hospital, Madurai, India.

Understanding definitions of visual impairment and functional vision

The legal definition of blindness assumes great importance in extending device-related support to those suffering from vision-related problems. Whereas Visual Acuity (VA) alone does not determine the quality of vision, certain other factors too have to be considered, specifically for the issue of driving licenses.



Assessment of binocularity using Worth's four dot test.

Globally, 253 million people are estimated to be visually impaired, of whom 36 million are blind. In the recent past, significant changes were made to the definitions of visual impairment and blindness, which has ensured that vision loss due to uncorrected refractive error is not excluded when estimating the burden of visual impairment.

The World Health Organisation has adopted the International Classification of Diseases 11 (ICD 11) definition of visual impairment and blindness. According to this definition, a person is said to be visually impaired if the presenting VA in the better eye is worse than 3/60. In this revised definition, near vision impairment is also included; it is defined as presenting near VA worse than N6 with existing correction.

Decision-makers in government use definitions of blindness and vision impairment when formulating policies to provide financial support and other benefits for those certified to be legally blind. For instance, in India, people who are legally blind can avail free public transportation and the assistance of scribe during examinations, etc.

The definition of blindness under India's National Programme for Control of Blindness (NPCB) is different from the current definition adopted by the World Health Organization in the International Classification of Diseases - 10 (ICD-10). The VA criteria under which an individual will be classified as blind in the two definitions are different, being 20/200 in the NPCB definition, and 20/400 in the ICD-10 definition after the 2006 revision. In India, the Ministry of Social Justice and Empowerment (MoSJE) is responsible for developing programmes that extend support to people with disabilities. As a recent initiative, the ministry has recommended that the revision of the blindness be cut off to 20/400 instead of 20/200 that is currently followed by NPCB. The only difference is the MoSJE classification will be applied to any person based on the best-corrected VA, and not the presenting VA. It is essential that the same criteria be used universally under all the programs associated with policymaking and service provision for the blind and the visually impaired.

Another important definition pertains to functional low vision. This is defined as 'VA less than 6/18 up to the perception of light, with treatment and best possible refractive correction, or visual field less than 10 degrees from the point of fixation'. This is an important definition for the sake of the evaluation, because a person with this vision may benefit from low-vision devices and services. Such a person must be encouraged and trained to maximise the potential benefit from the residual vision, often with the help of assistive devices and specific lifestyle changes.

It is important to note that the VA alone does not determine the overall quality of vision required for optimal functioning. The functional assessment of the vision comprises the visual field, colour vision, stereopsis, extraocular motility, contrast sensitivity, glare sensitivity and night vision, besides VA. All these are considered for specific critical licensing procedures, such as the issue of driver's and pilot licences, and determining eligibility for civil services, etc.

Driving is a complex activity where the driver should consider multiple objects in the visual field, scan the moving objects with precision to exercise sound judgment, and recognise coloured signals. Thus, aspects such as visual field, colour vision and contrast sensitivity are considered necessary while issuing a driving licence in certain countries. In India, the issue of a driving license for light motor vehicles is based on self-assessment and issue of a medical certificate, that cover the following vision-related aspects:

- In case of presence of any refractive error, whether it has been corrected with suitable spectacles
- Visual acuity: The ability to read a vehicle's number plate from a distance of 25 metres, translates to a VA of 6/12, as the standard size of these characters is 65mm
- Colour vision: the ability to distinguish the pigmentary colours - red and green
- Whether a person suffers from night blindness.



In India, driving license is issued by Regional Transport Offices (RTO) in every state, and the procedure is regulated by the Motor Vehicle Act (MVA) 1988, amended in 2017.

For an unrestricted (non-commercial) driving licence, it is recommended that, with both eyes, the applicant should have a VA of 6/12 or better, and an uninterrupted visual field of 120° or better in the horizontal meridian. There are lacunae in the mandatory standards for issuing driving licences, that needs to be addressed.

According to the International College of Ophthalmologists' (ICO) visual standards for driving, regular testing of contrast sensitivity and glare sensitivity has to be done. The licences should be renewed after a definite period, and people above 65 years of age should be evaluated more frequently. The licences can be issued with restrictions if the need arises. For a commercial driving license, a VA of 6/9 in the better eye, and 140° horizontal field of vision is required. If the uncorrected VA is < 6/24, the application for the licence is rejected.

Monocular or one-eyed persons are eligible for the driver's license, if the VA in the remaining eye is 6/12 or better, the horizontal visual field is 120 degrees or more, and at least six months should have passed after the loss of vision in the eye, for monocular adaptation.

Extrapolating the results of a clinical examination and aiding in rehabilitation can be complemented by the functional assessment of vision. The functional vision assessment includes a variety of evaluations to understand the impact of visual impairment in the daily activities of life and guide them to make successful adaptations.

Visual acuity

It is the spatial resolving capacity of the visual system and measures the sharpness of vision. Visual acuity is usually measured using a Snellen's chart at a distance of 6 meters or 20 feet. Several other charts are available for specialised conditions. Normal vision is denoted as a visual acuity of 6/6 or 20/20. Near VA measures the ability of a person to see objects at a working distance – usually about 40 cm or 16 inches.

Visual fields

A visual field refers to the entire area that can be seen by the eye when fixated at a point. It is measured by a confrontation test, tangent screen, Humphrey's field analyser or Goldman perimetry. It is significant to note that the presence of normal visual fields enables orientation mobility and helps while searching. In the case of glaucoma, retinitis pigmentosa, and many other neurological conditions, there is a possibility of the presence of a defect in the visual fields. This can be in the form of central scotomas and peripheral constrictions. An Amsler's grid can be used to measure the central fields, as it is essential in ascertaining legal blindness.

Colour vision

It is important to be able to distinguish colours well. The colour vision is assessed using D-15 panel test, and Ishihara pseudoisochromatic coloured plates. As part of rehabilitation, patients can be advised to seek high colour and tone contrast. The Ministry of Road Transport and Highways (MoRTH) amended Form 1 and Form 1A of the Central Motor Vehicles (CMV) Rules, 1989, to enable the citizens with mild to medium colour blindness, obtain the driving licence. However, restrictions on severe colour blind citizens in case of driving, still apply.

Contrast sensitivity

Contrast sensitivity is a measure of the ability to discern different levels of luminance in a static image. It can be measured using Lea's contrast test or Pelli Robson chart. Loss of contrast sensitivity caused by other ocular conditions will also affect the VA. People with low vision typically face difficulties in viewing objects or prints that have low contrast. Such persons are advised to adopt settings that offer good contrast, so that seeing becomes more comfortable, for example, rice in a dark bowl.

Glare sensitivity

It is a measure of how quickly drivers can resume control of their vehicles when suddenly blinded by the lights of a vehicle approaching in the opposite direction. The glare is the result of excessive brightness within the visual field, due to various factors, such as cataract, corneal scarring, albinism, and retinal dystrophies. The glare can significantly reduce the VA. Brightness acuity tester (BAT) can be used to ascertain the visual disability caused due to glare. It can also be assessed by the reduction in visual acuity, following prolonged exposure to a light source.

State of binocularity and stereopsis

The Worth's Four Dot Test, is used to diagnose the sensorial relationship between the two eyes. Red-green goggles dissociate the images seen by the two eyes. The testing is done at 20 feet and 13 inches, with the Worth-four-dot flashlight for macular fusion placed at a distance, and the peripheral fusion positioned in the proximity. This is a common adaptation to strabismus, amblyopia, and aniseikonia.

Stereopsis refers to the perception of depth or the relative proximity of an object. Determining the exact relationship of vehicles, animals and pedestrians, in the driving environment, is the most challenging aspect of the visual factors. It should be kept in mind that stereo acuity is not equivalent to depth perception, but is one of the many visual cues meant for determining the depth. This is tested using TNO and random-dot stereograms.

Night vision

Defective night vision is seen in patients with retinal disorders, such as retinitis pigmentosa, and those with cataracts. It is also seen in people with intraocular lenses or those who underwent a refractive operation when a wide pupil exposed the edges of the IOL or of the ablation zone. The latter group of patients may also experience glare and loss of contrast sensitivity.

It is important for eye health workers to understand the functional assessment of vision, as it directly translates into visual efficiency in daily activities. This will not only aid in the development and interpretation of policies but also help in designing an enabling an ideal environment for children with visual impairment or any other disabilities.

Test your knowledge and understanding

Use these questions to test your understanding of the concepts covered in this issue.



We hope that you will also discuss the questions with your colleagues and other members of the eye care team, perhaps in a journal club. To complete the activities online – and get instant feedback – please visit www.cehjournal.org

Tick ALL that are TRUE

Question 1

In testing visual acuity, if the patient is unable to identify any letters on the Snellen chart, you should next test for the ability to?

- a. Count fingers
- b. Identify position of a stationary light
- c. Identify presence of a stationary light
- d. Identify direction of hand movements

Question 2

A handy way to screen for visual field defects is by use of the:

- a. Pinhole test
- b. Amsler grid test
- c. Red reflex test
- d. Tumbling E test

Question 3

In illiterate patients, one way to test visual acuity is by use of?

- a. Amsler grid
- b. Pinhole
- c. Tumbling E chart

Question 4

It is imperative to build a substantial pool of trained ophthalmic personnel because:

- a. They take eye services effectively to every corner of a nation
- b. They fill the gap in the services chain, between healthcare and patients
- c. They are critical in a nation's endeavour to bring down the incidence of avoidable blindness
- d. All of the above

ANSWERS

1. a. In patients who can't recognize the biggest letter on the Snellen graph, test the patient's ability to distinguish the number of fingers showed at a distance of 1 foot from each eye (with the other eye closed). In case the patient cannot count fingers, test the patient's capacity to distinguish the direction of hand movement at a distance of 1 foot from the eye.
 2. b. The Amsler grid test uses a grid of vertical and horizontal lines to assess for visual field defects in the central visual field. It is also known as Macular degeneration test chart.
 3. c. The tumbling E chart is fundamentally based on the patient's ability to indicate direction of the displayed letter E. It can be used to test visual acuity in people with speech and language disorders as well.
 4. d. All of the above.

Allied ophthalmic personnel

Their scope of work



- Trained professionals can assist in diagnostic evaluation, management, education and care of patients with ocular morbidities
- Performing imaging
- Assistance in ophthalmic surgical activities

Technology to support their work



- Lensometers help opticians to determine refractive power quickly
- Smartphone applications such as Peek Acuity can be used for screening and are easy to carry to difficult-to-reach areas
- Applanation tonometry is a good option to screen glaucoma early

Building capacities of locally available human resources



- Local human resources are best choice to engage for reaching out to the people residing in difficult to reach areas.
- Locals are more motivated to serve their region, with lower attrition rates.
- Trained eye care work force reduces time taken in identification, recruitment and training.