Maintaining quality in community eye care – The Aravind model

Based on the recent rapid assessment of avoidable blindness (RAAB) survey (2015–2019),[1] the prevalence of blindness (PVA <3/60) has been estimated to be 0.36% in the overall population which corresponds to over 47 lakhs people being blind in India. It is also estimated that around 9.5 million people (PVA <6/60) need urgent eye care. Cataract continues to be the principal cause of blindness (66.2%) in the population aged ≥50 years.[1]

According to the survey, cataract surgical coverage among the visually impaired (VA <6/18 in the better eye) due to cataract was 74.0%. Among those people identified to be blind due to bilateral cataract, most reported barriers were local reasons (25.5%, including no one to accompany, seasonal preferences, personal reasons). Other important barriers were financial constraints (22.1%), did not feel the need for surgery (18.4%), and fear of surgery (16.1%). In addition, barriers related to access and systemic comorbidities accounted for 17.9%.[1]

Given the current scenario, community-based eye care initiatives are very essential across the country to provide access to eye care for those in need. The problem of needless blindness and visual impairment cannot be addressed only by treating patients who come and seek care at eye hospitals. To ensure quality, accessibility, and affordability of community-based eye care, it is very important to make use of modern technology-efficient management systems.

At times, "community ophthalmology" is misunderstood as synonymous with organizing outreach eye camps. Community ophthalmology encompasses a broad spectrum of components that can supplement the delivery of eye care:
- Creating awareness of eye health in the community through various strategies
- Conducting epidemiological research and community-based surveys
- Planning and management of sustainable eye care services
- Dissemination of information to eye care service providers and service users
- Social marketing of eye care services
- Improving the utilization of eye care services
- Provision of comprehensive eye care services
- Integration of key components such as school children screening, community-based rehabilitation, and primary eye care
- Training of primary eye care workers.

Aravind Eye Hospital was Dr Venkataswamy's post-retirement project, created with no money, business plan, or safety net. The most important asset that this team possessed was faith – faith in their vision to eliminate needless blindness, faith in their business model of serving the people at the bottom of the pyramid, faith in their ability to work hard and make the right choices to reach their goal, faith in the inherent goodness and truth in the human soul, and finally, the faith that the trust their patients developed in them would guide them in their journey.

The cornerstone of Aravind's high volume work is the outreach program that encourages the active involvement of the community. To reach villages having no access to good eye care facilities, Aravind replicated Dr V's model of outreach eye camps organized with support from several compassionate and generous individuals in the community and non-governmental organizations, namely, Lions Clubs International and Rotary International. In this initiative, people were screened for cataract at the camp site, and those who required cataract surgery were brought to the base hospital for free surgery. Aravind's outreach model over the years transcended the traditional screening for cataract alone and started providing comprehensive eye examinations at the eye campsite and necessary treatment at the base hospital.[2]

At present, Aravind conducts over 2,800 eye camps for early diagnosis of all kinds of curable and preventable eye problems predominantly specific to various age groups. In the year 2018–19, Aravind conducted 2,833 eye camps in the community and examined 563,941 outpatients; of these 88,380 people underwent surgery and 80,361 people were dispensed with eyeglasses.

Types of Aravind Camps

1. Comprehensive Eye Camps: A clinical team consisting of doctors and paramedical staff examines patients for eye problems. Those diagnosed to have refractive errors are offered eyeglasses at a deeply subsidized price. Patients identified with cataract are brought to the base hospital for free surgery through locally arranged transport. Those who are identified with specialty eye problems such as glaucoma and diabetic retinopathy (DR) are counseled and referred to the base hospital for further intervention.
2. DR screening camps: These camps are arranged in partnership with local diabetologists or physicians. Medical teams who are trained to identify and diagnose DR examine patients. Patients who are identified as having early DR/no retinopathy are advised to undergo regular follow-up. Patients who have advanced DR and who require laser or surgical treatment such as vitrectomy are referred to the base hospital.
3. Refractive error screening camps for working population: Around 48% of the total population in the age group of 25 to 59 years are working in various sectors. In this population, uncorrected presbyopia and refractive error are the principle causes of visual impairment which may affect the quality and productivity of their work. Industries and other fields of work are the prime targets for these types of camps. Eyeglasses are dispensed to people diagnosed with refractive errors.
4. School eye screening camps: Refractive errors are the single largest cause of visual impairment among school-going children. To initiate ownership and accountability, Aravind trains schoolteachers to conduct preliminary vision assessment. Children identified by teachers as having vision problems will be examined by the Aravind medical team. Those identified with refractive errors are dispensed eyeglasses to improve vision. Children found to have minor eye ailments are referred to the base hospital for further intervention.

5. Paediatric screening eye camps: These camps focus on prevention and treatment of eye problems in children aged 0 to 5 years (babies and preschool children). Parents are educated about eye safety, prevention of eye diseases, childhood illnesses, and nutritional deficiencies that can lead to blindness.

6. Retinopathy of prematurity (ROP) screening: With improving neonatal care leading to the better survival rate of premature infants, ROP is fast emerging as a common preventable cause of vision impairment in India. The overall aim is to reach out to preterm babies at government hospitals/neonatal intensive care units (NICUs)/private hospitals for screening, and referral to secondary/tertiary eye care institutions for treatment of ROP.

While most of these camps are organized with support from local community sponsors, Aravind is also experimenting with a few public-private partnership initiatives. As a first step, Aravind is collaborating with the government primary health centers in Theni and Tirunelveli districts of Tamil Nadu to screen diabetic patients for DR deploying teleophthalmology.

Strategies in Outreach to Ensure Quality

Offering high-quality care has always been Aravind's priority. The fact that eye camps provide free service should not lead people into thinking that quality will be compromised. Aravind invests in stringent measures to ensure that quality is maintained in each step of the caregiving process.

A standard protocol is followed in the screening camps to ensure comprehensive eye examination through a series of tests which include refraction, intraocular pressure measurement, lacrimal duct patency, random blood sugar test, blood pressure measurement, and fundus examination. Aravind has standardized the criteria to select, screen, and admit patients for surgery. Necessary steps are taken to ensure patient safety and patient-centered care.

A detailed preoperative evaluation (A-Scan biometry, intraocular pressure measurement, and blood pressure assessment) is carried out for all cataract cases at the base hospital. Patients with complicated cataract, having other ocular comorbidities or systemic conditions are given special attention to ensure the quality of the surgical outcome. To avoid infections, robust aseptic practices are followed in the operation theatres.

After a month of each comprehensive camp, a follow-up camp is arranged at the same site for patients who underwent cataract surgery to undergo their review. This helps achieve a higher follow-up rate. Aravind is maintaining 85% to 90% follow-up at 1 month. A medical team consisting of an ophthalmologist, ophthalmic technician, and optical staff attend the follow-up camp and provides the necessary services.

It is very important to standardize and follow the set protocols to maintain quality at all levels. The success of any community outreach program rests on the public's trust in the initiative which in turn is influenced by maintaining good quality. Aravind Eye Hospitals have an excellent system for documentation, a constant review of complications, outcomes and infections, and so on to ensure quality. It is equally essential to monitor follow-up rates of postoperative cases. In high volume settings, such quality assurance processes make

extensive use of robust IT systems to capture data and help in evidence-based decision-making.

Monitoring is an important aspect of any eye care organization striving to continuously improve the quality of services rendered. At Aravind Eye Hospitals, outreach performance review meetings are conducted every week in the presence of the staff concerned. Relevant data for each kind of outreach activity is collected from the respective staff. The standard outreach management information system (MIS) is used to monitor the camp performance of the previous week plan for forthcoming camps and follow-up camps.[3]

Towards Ensuring Universal Coverage in Eye Care

Over the years, the annual number of eye camps grew to be over 2,500 with about a million people including school children being screened. To assess if this was indeed meeting all eye care need in the community, a research study was undertaken in the communities served by eye camps. This study showed that a mere 7% of those in need of eye care showed up at an eye camp.[4]

This, somewhat depressing evidence, signaled the need for a radically new design of community eye care in fixed facilities to ensure eye care to all in need. Thus, Aravind established its first vision center in 2004. This growing network currently includes close to 80 centers all over Tamil Nadu and Pondicherry. Each vision center serves a population of 50,000 to 70,000. Operated by ophthalmic technicians, these telemedicine-assisted centers provide a chance for patients to consult the ophthalmologist in the base hospital.[3,5]

Since the entire operation is done online, all information relating to the functions of the vision centers are readily available. There is a small central team which does the coordination of all the vision centers spread across Aravind's seven base hospitals. The staff of all the vision centers meet periodically (every 6 months). In this meeting, the performance of each center is reviewed in detail resulting in rich cross-learning of what worked well as well as the issues. These meetings generate several ideas and suggestions for continuous improvement. Of the patients who attend these centers, 91% received complete service at the center itself and less than 10% were referred to the base hospital for further treatment which would be for surgery or advanced investigations. The compliance to treatment is tightly tracked and this hovers between 93%–95%. This compliance relates to both at the vision center in purchasing glass or medicine as prescribed and in reporting to the base hospital when referred.

Aravind model of achieving universal coverage in eye care through vision centers has caught wide attention and is being increasingly replicated in several Indian states and in Bangladesh.

Lions Aravind Institute of Community Ophthalmology (LAICO)

LAICO, Aravind's consulting and training arm shares best practices of the organizations with eye care communities across the globe. This is done through consultancy for capacity building, management and technical training and advocacy with governments and policymakers. LAICO has worked with

over 360 hospitals in India and other developing countries and has trained over 2000 professionals from 70 countries. It is conservatively estimated that LAICO's work has resulted in an additional 700,000 surgeries annually.

Conclusion

Maintaining quality in community eye care is not just confined to delivering the best visual outcomes but it implies a lot more aspects such as the efficiency of the caregiving process, ensuring patient compliance to treatment, closing the service loop so that the patient does not have to make multiple visits, and ultimately patient satisfaction.

In short, an effective community eye care program should:
- Address community needs
- Understand community constraints
- Provide easy access in terms of logistics, timings etc.,
- Ensure services are affordable and the charges reflect the paying capacity
- Provide affordable services
- Keep abreast of the relevant technological advances
- Help in improving the health-seeking behavior of the community
- Generate demand for healthcare in the community who needs but not seeking for.

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About the author

Dr. P. Namperumalsamy

Dr. P. Namperumalsamy, after his fellowship from USA, started Vitreoretinal Surgery at the Government Rajaji Hospital in 1975 and he is one of the founding members of Aravind Eye Care System which was founded by Dr. G. Venkataswamy in 1976. He was the Director and Chairman of Aravind Eye Hospital and is now the Chairman Emeritus. Under his Chairmanship, Aravind Eye Hospital received major international awards such as Antonio Champalimaud Vision Award, Gates Award for Global Health for Preventing and Curing Blindness, Conrad N. Hilton Humanitarian Prize and Vision Award 2011. He has set up IT-enabled Vision Centres in rural areas with telemedicine, has established Aravind Virtual Ophthalmic Academy and has taken a leading role in the establishment of Dr. G. Venkataswamy Eye Research Institute. Nam, as he is lovingly called, has trained over 85 postdoctoral fellows in Vitreoretina and generations of Ophthalmology residents. His numerous awards and accolades include Padma Shri by the Government of India, Lifetime Achievement Award by the AIOS, Achievement Award by the American Academy of Ophthalmology, Dr. B.C. Roy National Award as the Eminent Medical Teacher, Time 100 – honour being one of the 100 most influential people in the world etc. We are proud to have Nam as one of the Mentors of IJO.