

ARAVIND EYE CARE SYSTEM

Vision: Eliminate Needless Blindness



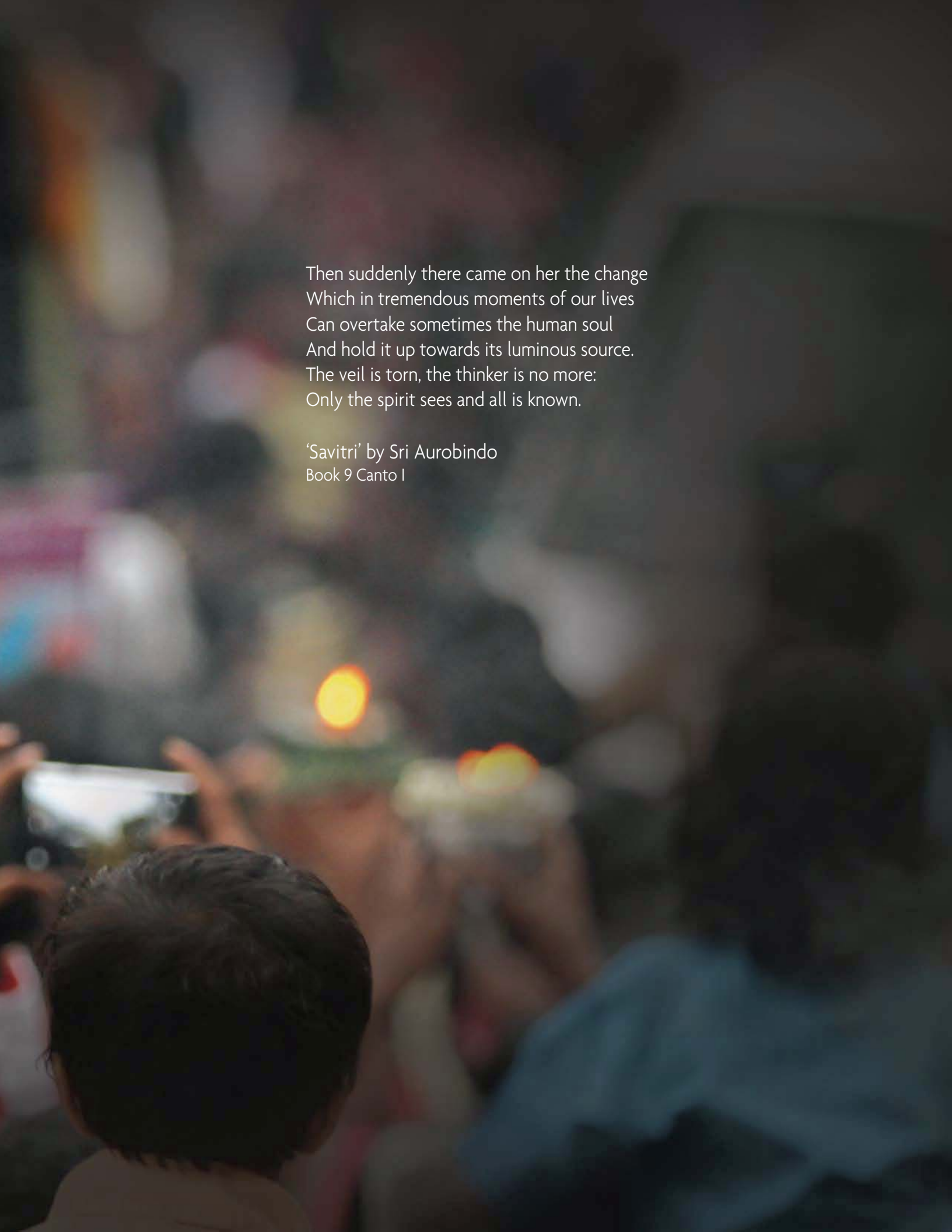
activity report 2014-15



CHITHIRAI FESTIVAL

Every April, the bustling city of Madurai explodes in a riot of people, colors and religious fervor as it celebrates the wedding of Goddess Meenakshi with Lord Shiva and also of Lord Alagar's visit to the Vaigai river to redeem Manduka Rishi from his curse. This several centuries old, month long festival of processions, music, and temple ceremonies is the city's largest celebration.

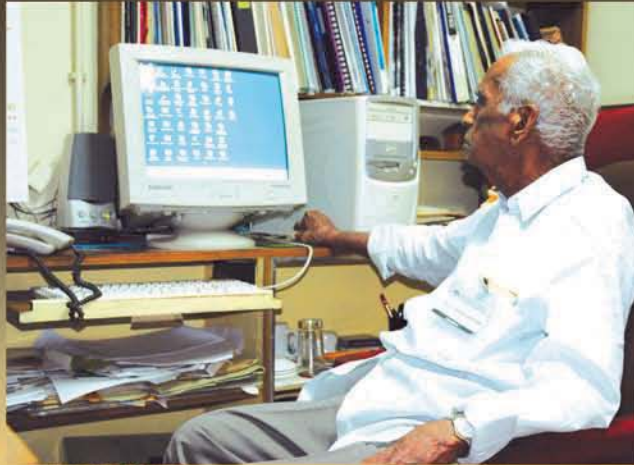
Front Cover, this page, and pages, 6 - 8, and 9 depict scenes from the Chithirai Festival.



Then suddenly there came on her the change
Which in tremendous moments of our lives
Can overtake sometimes the human soul
And hold it up towards its luminous source.
The veil is torn, the thinker is no more:
Only the spirit sees and all is known.

'Savitri' by Sri Aurobindo
Book 9 Canto I





The first time when someone showed him how to use Google's satellite maps, Dr. V spent an entire afternoon excitedly looking up all the obscure cities and towns he had ever been to. Not an unusual fascination when you remember how much of his work has involved putting forsaken people and places on the map. His curiosity is eclectic but never frivolous; everything connects back to being a perfect instrument and helping people in need live better lives. On this morning in 2003, he is reading up on an Alaskan telemedicine project. "We need something like that to reach our villages," he says matter-of-factly.

- from 'Infinite Vision'

by Pavithra Mehta and Suchitra Shenoy



Loss of Sight can be the greatest tragedy next to death. Yet hundreds of thousands of people in the world are suffering from blindness.

Participation by the public is the urgent cry in this mission of restoring vision.

- Dr. G. Venkataswamy

EYE CARE SERVICES

Mission: Provide compassionate and quality eye care affordable to all.

5 TERTIARY EYE CARE CENTRES (Speciality Care, Research & Training)

Madurai 1976 Pondicherry 2003
Tirunelveli 1988 Salem 2011
Coimbatore 1997

6 SECONDARY EYE CARE CENTRES (Cataract Services, Speciality Diagnosis)

Theni 1985 Tuticorin 2012
Tirupur 2010 Udumalpet 2012
Dindigul 2010 Coimbatore City Centre 2014

6 OUTPATIENT EYE CARE CENTRES (Comprehensive Eye Examination, Treatment of minor ailments)

Melur 2004 Madurai City Centre 2009
Tirumangalam 2005 Sankarankovil 2010
Cumbum 2008 Pondicherry City Centre 2011

51 PRIMARY EYE CARE CENTRES (Comprehensive Eye Examination)

EYE SCREENING CAMPS

(Community Outreach Programmes)

2,518 camps were conducted through which 564,660 patients were screened and 92,816 surgeries performed in the year ending March 2015.



ARAVIND EYE CARE SYSTEM

Vision: Eliminate Needless Blindness

EDUCATION AND TRAINING

Mission: Develop ophthalmic human resources through teaching and training

Around 8,300 candidates trained from 100 countries

1,152 papers published

RESEARCH

Mission: Provide evidence through research and evolve methods to translate existing evidence and knowledge into effective action

- Basic and translational research - Clinical research - Operations research - Product development in eye care

104 research papers published 14 scholars received Ph.D

CONSULTANCY AND CAPACITY BUILDING

Mission: Enhance eye care through capacity building, advocacy, research and publications

- Sharing best practices at Aravind - Advocacy in eye care - Publications

317 hospitals from 28 countries received consultancy services in eye care management

OPHTHALMIC SUPPLIES

Mission: Make quality ophthalmic products affordable and accessible to the vision impaired worldwide

- Intraocular lens - Pharmaceuticals - Suture needles

- Equipment - Surgical blades - Special products

Products exported to more than 130 countries worldwide

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Special thanks to

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Another year has gone by quickly, seemingly one ordinary day after another, even though each day is quite extraordinary, with about 15,000 patients being examined and 1,500 surgeries being performed. As always, it is the preparation of the past year's Activity Report that forces the staff to reflect back on what has been achieved, the work-in-progress, the challenges that lay ahead and what needs to be done. There's a lot to report on all fronts.

Highlights 2014-15

It's universally known that a strong primary health care system is fundamental to building and sustaining a healthy community. It's at the primary care level that one can engage in preventive measures, be timely in case finding, manage common problems locally and thus promote health and well-being. While the notion of *primary eye care* has been around for some time, it has lacked clear scope and an enabling structure. By and large it tends to be sporadic efforts by community level general health care workers.

Although Aravind has always had extensive community outreach programmes, there was no structured primary eye care approach until more recently. The vital need for this became evident through a study which established that Aravind's eye camps reached a mere 7% of those in need. This finding spurred the organisation to create a permanent service solution for rural communities. Aravind's first primary eye care centre, or "Vision Centre" as it is called, was inaugurated a little over a decade ago in Ambasamudram, a small village near Theni.

Aravind now has a growing network of 51 Vision Centres, five of which were added during this past year. This strong emphasis on primary eye care has resulted in some striking outcomes. Last year, for the first time ever, the number of patients seen at Vision Centres (396,007) exceeded the number of patients seen through comprehensive eye camps (347,053). The data also reveals that close to 25% of the general population has visited a Vision Centre at one time or another, an impressive percentage and much higher than the 0.25% of the population that attended an eye camp.

This represents a hundred fold increase in penetration for providing eye care in the communities. These findings have reinforced Aravind's goal of expanding its network to 150 Vision Centres covering a total population of 10 million. The Vision Centres have also demonstrated their potential role in the effective management of chronic conditions like glaucoma and diabetic retinopathy, in addition to dealing with other eye conditions through active case referrals or



THE PROMISE OF PRIMARY EYE CARE



Scenes from an Aravind Vision Centre - Patient registration, tele-consultation and slit lamp examination

preventive interventions. This realisation led to a pilot initiative supported by SightSavers. The Vision Centre outcomes have been presented at various forums and have generated a great deal of interest. The Governments of Jharkhand, Chhattisgarh and Madhya Pradesh are actively considering developing a similar network of Vision Centres either as a pilot or state wide. Sir Fazle

Hasan Abed, the founder of BRAC, the largest NGO in the world, during his visit to Aravind saw a Vision Centre and immediately saw the potential of implementing it nationwide with local partners to enhance eye care service in Bangladesh. A group of students from Harvard School of Public Health spent several weeks working on a road map for the expansion of Aravind's own network of Vision Centres, as well as the amplification of the approach worldwide, an ambitious service goal to have a billion people covered by structured primary eye care service by the year 2020. Not by Aravind, but by Governments and others, with Aravind facilitating, where required, as a resource centre and a technology provider.

Sir Fazle Hasan Abed and Ms. Lady Syeda Sarwat Abed with Mr. R.D. Thulasiraj, Dr. S. Aravind and Dr. R.D. Ravindran



The data reveals that close to 25% of the general population has visited a Vision Centre at one time or another, an impressive percentage and much higher than the 0.25% of the population that attended an eye camp.



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vamy

Subroto Bagchi, one of the founders of Mindtree - a rapidly growing IT company, visited Aravind along with his wife, Ms. Susmita Bagchi and made a generous personal contribution towards Vision Centres, management of retinopathy in premature babies (ROP) and basic research in diabetic retinopathy. He was deeply struck by Aravind's value system, culture and work ethos and was inspired to expose his own company to the same. Following his visit, a team of 25 senior leaders from Mindtree travelled to Aravind and spent a couple of days studying the model and holding in-depth discussions on how to focus on values in their own work and organisation.

The interest in understanding and replicating Aravind's culture outside the realm of eye care is widespread and continues to grow. Mr. Sanjay Kothari, Secretary, Department of Administrative Reforms and Public Grievances came and spent four days along with his colleague Mrs. Vandana Sharma, Joint Secretary, Department of Pension and Pensioners. He had a strong conviction that exposing senior government officials to the culture of Aravind, as part of their periodical training, would have a positive influence on their work ethos and approach. This led to over 50 senior officials of the Government of India coming in two batches



Dr. Jayanti S Ravi performing a musical rendition on Dr. V

Senior leaders from Mindtree with the Aravind team at Nithyatha



DRAWN BY THE CULTURE OF VALUES

for a three day structured study of Aravind to take back lessons for their professional as well as personal lives. Such groups of government officials are now becoming regular visitors with a new batch scheduled every other month.

Mr. D. Chakrapani, IAS, Director, Centre for Innovation in Public Systems helped organise a cultural presentation by Dr. Jayanti S Ravi, IAS, Commissioner of Labour, Government of Gujarat on Dr. V. The event titled “Dr. V - the fountain head of universality, innovation, determination and fraternity” was staged during October Summit. With her meticulous musical rendition, slide presentation and readings from the book ‘Infinite Vision’, it was a powerful and inspirational experience.

As this trend of interest from non-health care related individuals and organisations grows, Aravind increasingly recognises that its real strength lies in doing ethical work, where the means are as important as the end. These diverse visitors and their thoughtful probing serve to bring more clarity and deeper understanding to Aravind’s own staff, for which the organisation feels deeply grateful. On a more pragmatic level, the organisation realises that it would benefit from a more strategic approach



Dr. G. Natchiar with Mrs. Krishnammal Jagannathan at Aurofarm

to this aspect of its work, in view of the increasing demand for such exposure visits. On another note, the organisation continues to be blessed and energised by the visits of former President of India Dr. A.P.J. Abdul Kalam, who visited Aravind on 31st May 2014 and held an informal, yet intensely thought-provoking discussion with the research staff. Aravind was indeed fortunate to have Mrs. Krishnammal Jagannathan, renowned Gandhian, a social service activist and a philanthropist delivering a motivational talk to the staff at Aurolab.

Dr. G. Natchiar and Mr. R.D. Thulasiraj in discussion with the visiting senior officials, Government of India



PARTNERING WITH HOSPITALS IN INDIA AND BEYOND



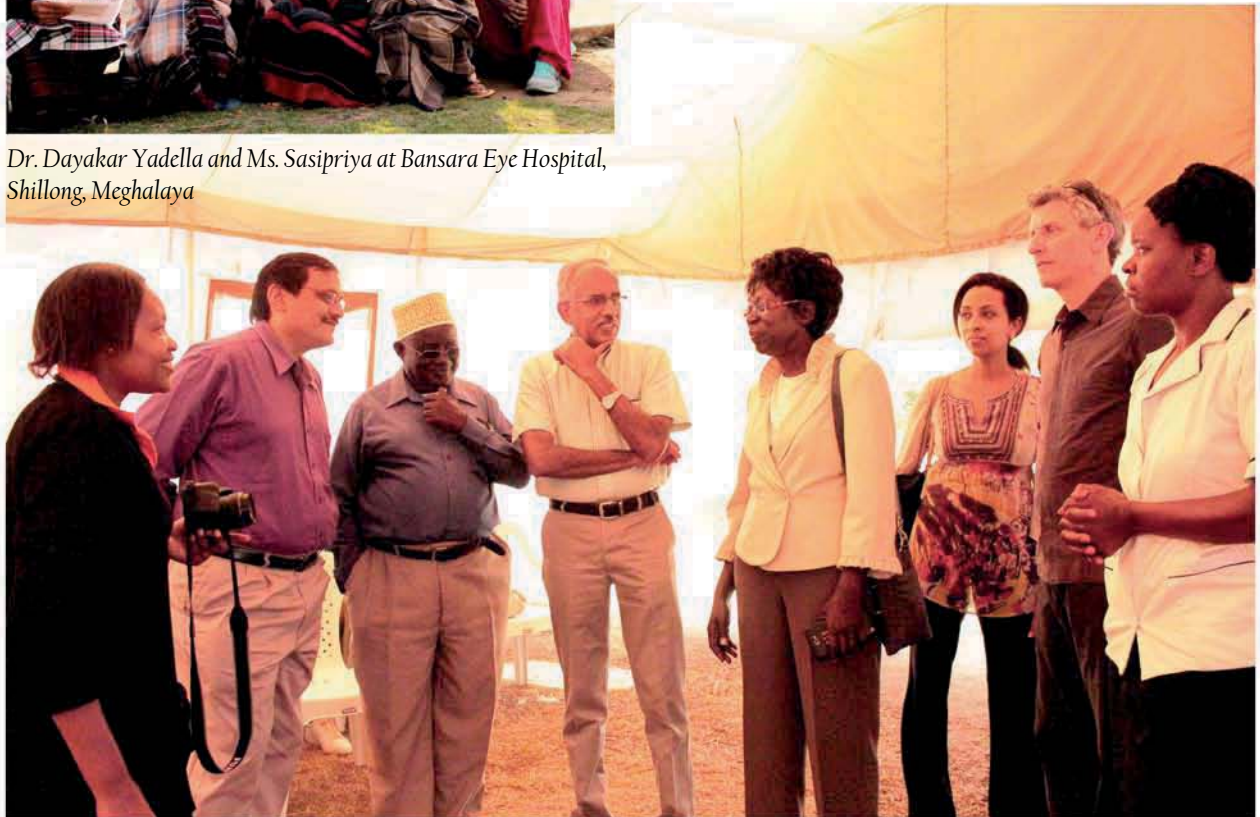
Mr. R. Suresh Kumar and Mr. Yesunesan at Ispahani Islamia Eye Institute, Jamalpur, Bangladesh

On the LAICO front, ongoing capacity building work with other eye hospitals continues to grow. The funding from Lavelle Fund and So-Hum Foundation, will enable LAICO to work with 35 more eye hospitals from the Indian sub-continent. LAICO's experiment to enhance cataract services in Sub Saharan Africa has demanded a great deal in terms of energy and resources from both the LAICO team and the staff from partner hospitals. The mutual contributions and hard work are reflective of a deep commitment to making a difference.



Aravind team visiting an eye camp by Innovation Eye Centre, Kisii, Kenya along with Dr. David Friedman and Dr. Fasika Woreta from Dana Centre

Dr. Dayakar Yadella and Ms. Sasipriya at Bansara Eye Hospital, Shillong, Meghalaya





OCTOBER SUMMIT



Participants to Patient Safety workshop at October Summit

This year LAICO and Aravind took a lead in shining a spotlight on underserved districts of India. While India is proud of its overall performance in eye care, averages can be very misleading. There are several districts in the country where eye care service is at a mere 10% to 20% of the national average, using the Cataract Surgical Rate as the metrics. A national workshop was organised with participation from concerned states (Rajasthan, Chhattisgarh, Bihar, Odisha, Jharkhand and Assam) and District Officers as well as representation from International NGOs to address this on a project mode. At this workshop it was decided to focus on two districts from each of these states as a pilot - a total of 12 districts. Following the workshop, necessary directives were obtained from the Ministry of Health, Government of India and detailed plans are being formulated to increase the eye care service in these districts.

As patient volumes increase at Aravind and in the country, there is a growing concern around patient safety - of first making sure that no harm is done, while at the same time ensuring that the patient gets the most appropriate care. At a workshop that was part of the October Summit, the topic of patient safety specific to eye care was explored for the first time in the country. The workshop was attended by leading hospitals all over India and several other developing countries.

Recognising the critical role of leadership in influencing the organisation's purpose, values and sustainability - a two-day workshop was held in Pondicherry, attended by eye care leaders from all over the world. As always, the most anticipated event of October Summit was the Dr. G. Venkataswamy Oration, which was delivered by Dr. Gullapalli N Rao. He graciously accepted the award and gave an informative talk on a comprehensive approach to eliminating avoidable blindness, a goal towards which Dr. V. worked tirelessly.

Dr. P. Namperumalsamy presenting the Dr. G.V Endowment Award to Dr. Gullapalli N Rao in the presence of Dr. M. Srinivasan and Mr. G. Srinivasan



BREAKING NEW GROUND

After significant delays and hurdles, the construction has begun for the Aravind Eye Hospital building in Chennai. Given the demand potential from Tamilnadu and adjoining districts of Andhra Pradesh, it is anticipated that this will grow to be the largest eye hospital within Aravind's network. During the year, Aravind also opened its 11th hospital in Coimbatore city. The planning or approval process for a permanent hospital in Dindigul, Salem and the much needed expansion in Tirunelveli and Coimbatore are also in progress.



At the inauguration of Aravind - Coimbatore City Centre

RELEVANT RESEARCH

It has been the thrust of Aravind Medical Research Foundation to embark on relevant research using cutting edge technology meshed with hardcore science. Its proteomics department has been strengthened by the introduction of a state-of-the-art triple quad mass spectrometer which will greatly complement the existing proteomic platforms. An integrated approach of using this facility has considerably widened the scope to address the problems of diabetic retinopathy, fungal keratitis and glaucoma. In addition, an advanced in vitro confocal microscope has been added to the centre which will aid in research pertaining to stem cell biology. A high speed biocomputing centre has been established to provide state-of-the-art computational methods involving genome analysis, mutational analysis, protein structure-function analysis, protein-protein interactions, evolutionary analysis and data analysis of next-generation sequence data.

Confocal laser scanning microscopy facility at AMRF



AFFORDABLE AND ACCESSIBLE

Aurolab sales crossed the Rs.100 Crores or Rs.1 Billion mark this year and continue to grow at around 20%. Aurolab along with an MIT start up PlenOptika were jointly awarded a highly competitive grant of US\$ 400,000 by “Indo - US Technology Endowment Award” for the development and commercialisation of a low-cost Auto refractometer. “Hawk I”, a slitlamp with four variants was launched to fill a long-felt need for a high quality, yet affordable slitlamp. Aurolab won tenders from 10 ministries of health in international markets and from 5 states in India. It also achieved registration for 39 products in 8 countries, paving the way for easy availability of its products to customers and patients across these regions.

TOWARDS GREENER FUTURE

Aravind has always been environmentally conscious. Over the years, this has played out through multiple strategies. Over a decade ago, it established the largest organic waste water treatment plant (DEWATS) in its Pondicherry hospital, which turns about a quarter million litres of hospital effluent water each day into clean water. A similar plant was installed at Aurolab three years ago to treat waste water from the staff quarters. This takes care of most of the irrigation needs of Aurolab - the land where Aurolab is located, where trees, crops, vegetables and flowering plants are grown organically.

A more recent study conducted by Dr. Cassie Thiel Ph.D, a Fulbright Scholar showed that the amount of wastage in Aravind's operating rooms is about 10% (0.25 kg) of its counterpart in the US (2.25 kg) per patient. Pursuing this line of being environmentally friendly, Aravind recently installed a large scale Solar Power System, based on the favourable experience of Aurolab, which installed a similar system a year ago. Today Aravind Eye Hospitals at Madurai, Tirunelveli and Coimbatore have a total installed solar capacity of 400 kVA. The power generated by them now accounts for 10 - 12% of the total consumption and the organisation aims to increase this to about 20% in the near future.



An aerial view of solar panels on the roof of Aurolab and the lush Aurofarm around





Patient centred care has always been a priority at Aravind achieved through well laid-out infrastructure, efficient systems and competent human resources. Aravind has developed a host of parameters that measure volume outputs, efficiency and quality of clinical outcomes which drive the teams to continuously improve. The result is a determined focus across departments to improve parameter scores and thereby quality. Data in this way has functioned as a key facilitator of improvement in the quality of care by allowing doctors and nurses a greater understanding of their performance. Several developmental activities were carried out in the last year to improve care delivery thereby enhancing patient experience and level of satisfaction.

PATIENT CARE

Performance : April 2014 - March 2015

	Total	Madurai	Theni	Tirunelveli	Coimbatore	Pondicherry
OUT PATIENTS						
HOSPITALS						
Paying (New+Review)	1,907,928	581,757	84,017	281,268	378,433	270,670
Free (New+Review)	488,936	167,322	21,241	74,867	114,798	84,738
OUTREACH						
At Free Eye camps						
Comprehensive camps	347,053	104,284	19,999	46,398	82,368	78,462
Diabetic Retinopathy screening camps	39,417	10,595	2,298	1,605	16,805	7,541
Refraction camps	50,602	15,092	2,663	5,094	15,712	11,570
School children examined*	91,893	8,584	2,224	2,090	33,897	23,732
Paediatric eye screening	8,420	391	1,422	869	2,856	2,882
Mobile van refraction camps	27,275	-	-	-	20,387	-
Total outpatients examined in camp*	564,660	138,946	28,606	56,056	172,025	124,187
Vision Centres	396,007	158,733	58,206	86,064	30,834	42,719
Community Eye Clinics / City Centre	164,996	94,846	20,551	26,461	-	23,138
TOTAL OUTPATIENT VISITS	3,522,527	1,141,604	212,621	524,716	696,090	545,452
SURGERIES						
Paying	198,423	71,686	6,970	30,114	41,794	27,453
Subsidised (walk-ins to free hospital)	110,290	43,340	3,403	15,312	27,885	15,881
Free (through screening camp)	92,816	32,976	3,151	10,071	21,965	20,222
TOTAL SURGERIES	401,529	148,002	13,524	55,497	91,644	63,556

*Note: Excludes 288,219 children screened by teachers and found to be normal, taking the total outreach screening to 852,879



Tirupur	Dindigul	Salem	Tuticorin	Udumalpet
44,406	68,548	113,569	54,933	30,327
6,304	-	2,764	6,820	10,082
-	-	9,767	5,775	-
-	-	573	-	-
471	-	-	-	-
150	172	1,891	-	19,153
-	-	-	-	-
-	-	6,888	-	-
621	172	19,119	5,775	19,153
9,276	-	-	-	10,175
-	-	-	-	-
60,607	68,720	135,452	67,528	69,737
1,869	4,080	10,361	2,499	1,597
1,131	-	1,003	984	1,351
492	-	2,655	917	367
3,492	4,080	14,019	4,400	3,315

On the care giving front, the number of patients served continues to grow. Last year Aravind performed over 400,000 surgeries and laser procedures. Over 50% were either free or steeply subsidised.

Aravind's outpatient visits during the past year exceeded 3.5 million.

This represents an increase of about 25,000 surgeries and 175,000 outpatient visits over the previous year. As the base volume becomes larger, growth becomes challenging and yet Aravind continues to exhibit a growth rate of roughly 6 to 10%, thanks in no small measure to its dedicated staff as well as the community that has placed its trust in the organisation.



Surgeries Break Up	Total	Madurai	Theni	Tirunelveli	Coimbatore	Pondicherry
Cataract surgeries	262,053	100,750	10,332	32,206	55,391	42,578
Trab and combined procedures	6,077	1,995	178	1,199	1,547	907
Retina and vitreous surgery	12,485	4,927	7	1,470	3,876	1,845
Squint correction	2,597	1,230	-	324	712	331
Keratoplasty	2,323	832	12	415	693	337
Pterygium	5,417	2,130	201	491	1,466	638
Ocular injuries	1,603	531	8	107	483	407
Lacrimal surgeries	5,873	2,580	84	834	1,027	1,238
Laser procedures	79,941	24,736	2,441	15,323	20,550	10,722
Other orbit and oculoplasty surgeries	7,627	3,195	207	1,207	1,761	865
Others	9,962	2,567	54	1,041	3,178	2,631
Refractive surgery	5,571	2,529	-	880	960	1,057
TOTAL SURGERIES	401,529	148,002	13,524	55,497	91,644	63,556

Infrastructure

Aravind is all set to make its presence in Chennai, the state capital and the construction of the facility is proceeding at a fast pace. The hospital will provide better access to a large number of patients from India and abroad who would otherwise find it difficult to travel to other Aravind centres.

Plans are under way for a permanent hospital in Dindigul and Salem and for the much needed expansion works in Tirunelveli and Coimbatore.

In spite of the presence of several eye care providers in Coimbatore, only 40% of the city's eye care needs are met. To address this and also to make eye care easily accessible, Aravind opened a surgical centre at RS Puram in Coimbatore city on November 24. The centre serves a population of 1 million within a radius of 30km. It has facilities to manage cataract, refractive errors, medical retina, glaucoma, cornea.

Aravind - Coimbatore along with Essilor Group launched the mobile refraction unit on August 11. The van is fitted with state-of-the-art refraction and optical

Aravind City Centre at Coimbatore



Tirupur	Dindigul	Salem	Tuticorin	Udumalpet
2,811	2,795	8,989	3,293	2,908
31	47	99	74	-
1	-	354	5	-
-	-	-	-	-
2	-	32	-	-
50	69	303	53	16
2	3	61	-	1
2	-	107	1	-
554	1,010	3,464	799	342
29	102	165	67	29
9	54	301	108	19
1	-	144	-	-
3,492	4,080	14,019	4,400	3,315

dispensing equipment to do refraction of the patients and to do the edging and fitting of the lens in the chosen frames for on-the spot-delivery of the spectacles. This van will travel around rural areas covering schools and industries creating awareness about refractive errors and making quality refractive services affordable and accessible.

In the last year, the Cataract, Children's Eye Care and Vision Rehabilitation Services at Aravind -

Mr. Jayanth Bhuvanaraghan, Essilor Group, handing over the symbolic key to the Aravind team in the presence of Mrs. Archana Patnaik I.A.S, District Collector, Coimbatore at the launch of mobile refraction van



Mr. Manohar Devadoss inaugurates renovated Vision Rehabilitation Centre at Aravind - Madurai.

He instituted the Govel Trust Mahema Devadoss Endowment to support people with low vision. In the last year, 257 patients were benefitted with low vision devices funded by this endowment.

Madurai were shifted to spacious premises to offer better ambience for patients. Separate areas are now assigned for new, review and day care patients and this arrangement helped ease the congestion experienced by patients and staff earlier.

Cataract and IOL Services at Aravind - Madurai, Coimbatore, Tirunelveli and Pondicherry established laser refractive cataract suite. The equipment consists of different components including a reference image for the surgery which provides all critical measurements. The equipment also eliminates the need for manual toric marking and provides centration and alignment guidance for inserting the IOL. The other major component uses the femtosecond laser for making

Dr. R. Revathi inaugurating the LASIK Centre at Aravind - Salem





Dr. S. Aravind performing femtosecond laser assisted cataract surgery

incision, capsulorhexis and nucleus fragmentation, thus enabling blade free surgery.

LASIK facility was introduced at Aravind - Salem on June 29.

Initiatives to Tackle Visual Impairment in Children and Neonates

Aravind - Coimbatore launched a project to establish a centre to provide necessary training, intervention and rehabilitation for children with low vision. This two year project supported by USAID aims to identify and refer children with low vision in communities across Coimbatore with the help of specially trained key informants, school teachers, anganwadi workers and staff of primary health centres.

Currently, screening for Retinopathy of Prematurity (ROP) and its management is happening sporadically in the country. It is non-existent in rural areas and in the urban areas, where it is available, the accessibility is not uniform. Often children are brought to the hospital at stages 4 and 5, at which point, it is beyond the scope of restoring the vision. Aravind - Coimbatore has initiated Retinopathy of Prematurity Eradication-Save Our Sight (ROPE-SOS) project to screen babies for the disease in

the underserved and rural areas by a trained technician (non-ophthalmologist). Using a retinal camera, babies with this disease will be identified in real-time by transmitting the retinal images to a remote ROP expert. Necessary intervention is also provided.

For timely intervention to tackle blindness due to ROP, a two year project was started in December at Aravind - Madurai with support from USAID.

This is accomplished by

- equipping ophthalmologists in government hospitals to screen for ROP
- enhancing capacity of vision rehabilitation centres at Aravind to handle children with vision impairment between 0 to 3 years
- involving a developmental paediatrician to assess the general milestones in older children who were already treated for ROP and
- by developing a more comprehensive protocol in private Neonatal Intensive Care Units (NICU) both in Madurai and nearby districts.

Aravind - Pondicherry joined hands with Mahatma Gandhi Medical College and Research Institute, Kirumampakkam, Pondicherry for Eye Health Programme for Prematurely Born Children (EHPPBC).



Dr. P. Vijayalakshmi creating awareness on ROP amongst the NICU staff of Government Rajaji Hospital, Madurai

Memorandum of Understanding was signed on December 10.

Supported by USAID, Aravind - Pondicherry has started a two year project in February to effectively address the problem of visual impairment and blindness among children below six years in the service areas of the hospital. Using vision screener, field workers will screen children in the community for refractive errors and those identified with vision problems will be referred to the hospital and provided necessary treatment.

Genetic counselling and intervention as a preventive measure

Genetic testing facility was successfully established at Aravind - Madurai for the molecular diagnosis of retinoblastoma. Genetic analysis of retinoblastoma patients and entire family was carried out as part of standard management protocol. Newer methods including Next Generation Sequencing (NGS) technology have been employed for identifying disease causing changes at the molecular level. During the last year, these changes were identified in 32 patients. This data is being utilised for genetic counselling in these families. The new approaches save time and also reduce the cost of genetic testing considerably. Children's Eye Care Centre, Aravind - Madurai started offering counselling services on inherited eye diseases.

Glaucoma being a hereditary problem, several measures were taken to ensure screening of family members of glaucoma patients. At Aravind - Pondicherry, glaucoma patients are tracked with the

help of database and are motivated to bring their family members for screening. A tracking system has also been adopted to address high risk patients from being lost to follow up. The hospital is also involved in a study to stress the importance of screening siblings to prevent vision loss due to glaucoma. Part of that work addressing the sibling risk of angle closure glaucoma was published in the American Academy's journal, Ophthalmology.

Awareness Creation

To educate the public on the importance of proper eye care, awareness exhibitions were conducted at Aravind Madurai, Salem, Theni, Tirupur and Tuticorin. Instead of the usual posters, the exhibition had many interactive

A unique kolu organised at Aravind - Coimbatore to raise awareness on paediatric eye problems.*



**Artistic display of dolls usually depicting gods during Navaratri celebrations*



Nurse explaining about eye problems to school students at Kannae Nalama eye awareness exhibition, Aravind - Theni

models and demonstrations. Close to 10,000 people visited the exhibition. Free eye check-up and refraction tests were also arranged.

World Glaucoma Week was celebrated to sensitise the public and patients about the importance of screening and proper follow up to prevent glaucoma. Awareness activities including family screening camps and rallies.

To address the escalating problem of blindness due to diabetic retinopathy, exclusive camps were held to detect the disease and awareness talks were given by specialists on the occasion of World Diabetes Day.

New Initiatives

Carbondioxide laser system was installed in the glaucoma operating room at Aravind - Madurai to

perform laser assisted deep sclerectomy which is a form of Non-Penetrating Glaucoma Surgery (NPGS). NPGS is comparable in its efficacy with conventional trabeculectomy with a better safety profile.

Retina Department at Aravind - Madurai introduced the system of performing optical coherence tomography for patients on the same day rather than following the appointment system. This is found to be of extremely beneficial for those who come from distant places as they can finish their investigations in a single visit.

Cornea Services at Aravind - Madurai has initiated a study to ascertain whether diagnosis and prophylaxis of corneal ulcer with the help of specially trained village health workers will reduce the incidence of corneal ulceration in rural South India. The study also aims to determine the incidence of corneal ulceration in south Indian population.

Dr. B. Manohar Babu addressing the public at the awareness run as part of World Glaucoma Week celebrations, Aravind - Salem





Field worker sensitising the public on the importance of eye care as part of Universal Eye Care project

Neuro-ophthalmology department at Aravind - Madurai is currently in the process of trying out newer treatment modalities and strategies for effective management of optic neuritis.

Vision Rehabilitation Centre at Aravind - Madurai started dispensing smart cane to patients with mobility problems. The sensor attached in the cane helps detect the obstacles that are above the knee level and within the detection zone of the sensor.

Low vision camps in Vision Centres: Under the SightSavers supported project, 'Universal Eye Care and Comprehensive Eye Care for a Million People Coverage' the Vision Rehabilitation Centre at Aravind - Madurai organised exclusive low vision screening camps. Persons with low vision were identified by field workers through key informant method and were called for low vision camps arranged in 11 Vision Centres. A total of 273 people with low vision were screened in the camps and 72 persons were provided with low vision devices.

A decade of confidence building - Prosthetic eye services



Milestone

Ocular Prosthetics Centre has completed 10 years of excellent service in providing ocular prosthesis. During the last 10 years, more than 5,500 patients from across the states and abroad have benefitted through its service. The department also provides affordable facial prosthesis services, the first of its kind in entire Tamil Nadu, for patients undergoing destructive surgeries like exenteration. The clinic has successfully dispensed customised silicon facial prosthesis for 10 patients and plans are underway to scale up this service in the coming years.

Knowing Patients' Pulse

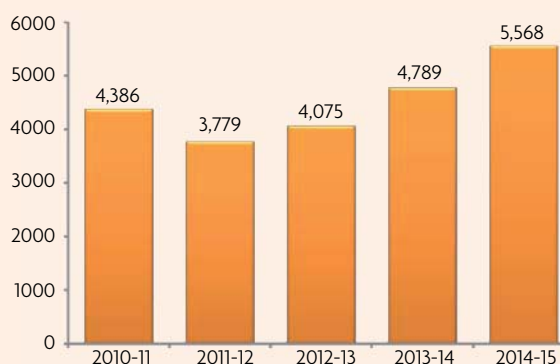
A comprehensive patient feedback system implemented at Aravind - Madurai uniquely combines patient feedback survey results with qualitative data gathered through routine focus group discussions (FGD). Every month over 1000 patients are surveyed and over 30 FGDs are conducted. This technique offers a unique insight, not only into how we measure up against patient expectations, but also specifically what action needs to be taken. Besides this, over 2500 telephonic interviews were made to collect feedback from Aravind's Vision Centres. Each department or centre, receives a monthly patient satisfaction report along with relevant audio clips from the FGD recordings. Patient feedback from this initiative has been incorporated into a number of educational and training programmes.

EYE BANK

Increased awareness about eye donation has resulted in a growth in number of corneas collected each year thus restoring vision to people with corneal blindness.

Yet, for the large volume of corneal blindness in the country, this is not enough. There is a huge gap between demand and supply still. To address this, Aravind eye banks actively focus on the community as well as hospitals for mobilising eye ball collection. In the last year, over 5,500 eye balls were collected. Tissues thus collected are shared within the Aravind eye Hospitals and also with surgeons across India upon request.

Eyes procured in the last five years



Eye collection / Utilisation data: 2014 - 15

	Eyes Procured	Eyes Utilised for Surgery
Madurai	2,019	1,125
Coimbatore	1,885	687
Pondicherry	1,004	322
Tirunelveli	6,60	254
Total	5,568	2,388

Cornea Retrieval Programme

In the Community

Volunteers and NGOs spread eye donation message in the community. Volunteers were trained on counselling the family members of the deceased and facilitating eye donation process. Local doctors were given the necessary training in enucleation. Eye banks have entered into collaboration with service organisations in arranging doctors for performing enucleation.

A permanent eye donation centre was opened at Kumbakonam, one of the districts that collects maximum number of eye balls. This initiative is considered to be the first of its kind in India. The facility is available 24 hours throughout the week and to a great extent, has solved the logistics issues related to eye ball retrieval in Kumbakonam. As a result, eye ball collection has doubled and the utilisation rate has increased from 35% to 55% which speaks for the vast improvement in quality.

From the Hospitals

Aravind eye banks have been collaborating with various hospitals since 2012 for procuring corneas. Specially trained counsellors are appointed in these hospitals to provide counselling to the family members of the deceased persons to facilitate the eye donation process. In the last year, Rotary Aravind International Eye Bank (RAIEB) at Madurai entered into a tie up with Dindigul Government Headquarters Hospital and Theni

At the opening of eye donation centre at Kumbakonam





Awareness rally as part of Eye Donation Fortnight observation

Government Medical College for procuring corneas. Various programmes were arranged in these hospitals to sensitise the staff on the significance of eye donation.

Regulatory Activities

Last year, RAIEB received quality certificate from SightLife for maintaining international standards in all the components in eye banking.

Training

In order to develop eye banking activities across the country, RAIEB extends training to eye bank technicians, counsellors and managers. A structured curriculum has been developed for this purpose. In the year ending March 2015, 3 technicians, 6 counsellors and 2 managers from various states in India were trained at RAIEB.

Creating awareness on eye donation amongst the staff of Theni Government Medical College



Awareness Programmes

Eye banks organised a series of awareness programmes on eye donation mainly focusing on educational institutions, industries, NGOs and hospitals. Eye Donation Fortnight August 25 to September 8 was observed to spread awareness about eye donation and involve community in this noble cause. As a way of expressing gratitude, special meetings were organised to felicitate the family members of those who donated their eyes.

Internal Capacity Building

Mr. Saravanan, Manager, Rotary Aravind International Eye Bank, Aravind - Madurai underwent Fellowship Programme in eye bank technical operations, hospital cornea retrieval programme, project management and planning organised by SightLife at Seattle, USA in June.

Eye bank at Aravind - Tirunelveli was renovated with newer facilities like sterile laminar air flow and separate serology laboratory.

Mr. D. Saravanan with the SightLife team at Seattle, USA





A student being examined at a school children screening camp in Ponnamaravathy

2,518 camps
during the last year
564,660 patients
screened
92,816 patients
underwent
surgery.

Since how many can be reached out relies upon the ground work done by the outreach team, there is a great emphasis on meticulous planning. At Aravind, this includes weekly meetings with camp organisers in each hospital as well a more comprehensive discussion at the end of the year involving the entire outreach staff from all centres. This regular planning helped in making necessary arrangements to meet the unusually high volumes of patients following the Indian parliament elections, during which there was a ban on holding eye camps.

New Primary Eye Care Centres (Vision Centres)

With the growing success of the Vision Centres in reaching out effectively into the communities, five new centres were opened during the last year, taking the total number of centres to 51. In the last year,

these centres collectively screened more than 396,000 patients.

Annual Planning Meeting

At the Annual planning meeting for the outreach staff across the Aravind centres held at Aravind - Madurai on January 8 - 9, around 45 participants attended. Discussions revolved on strengthening the outreach activities and developing strategies to achieve 100,000 cataract surgeries in the coming year.


Maintaining Longstanding Partnership with the Community

The various community leaders and individuals who actively support Aravind in organising eye camps are brought together on Sponsor's day. This is conducted once in two years to recognise their contribution, and

Annual planning meeting of Aravind's outreach staff



REACHING OUT



Through working in Vanuatu, I've come to know how rare your team's vision is. Aravind strives to find answers that help everyone and they do not leave rural villagers alone to navigate a complex health care system - your teams go to them to screen for disease, then provide transport to anyone needing to come in to the hospital; once they get there, they have places to sleep, and they have counselors explaining everything to them. It's truly amazing.

At Aravind, I learned important lessons that have stayed with me. Especially the lesson that it is possible to compassionately . . .

. . . help everyone in need - even those in remote villages. Your telemedicine (Primary Eye Care) centres are especially something I think about while living in my remote disconnected village.

*- Alexis Cullen, Peace Corps Volunteer - Vanuatu '16
Community Health Development*



Memorandum of understanding signed between Aravind and Indian Oil Corporation Ltd., South Region, Trichy for conducting free eye camps as part of Corporation's CSR programme



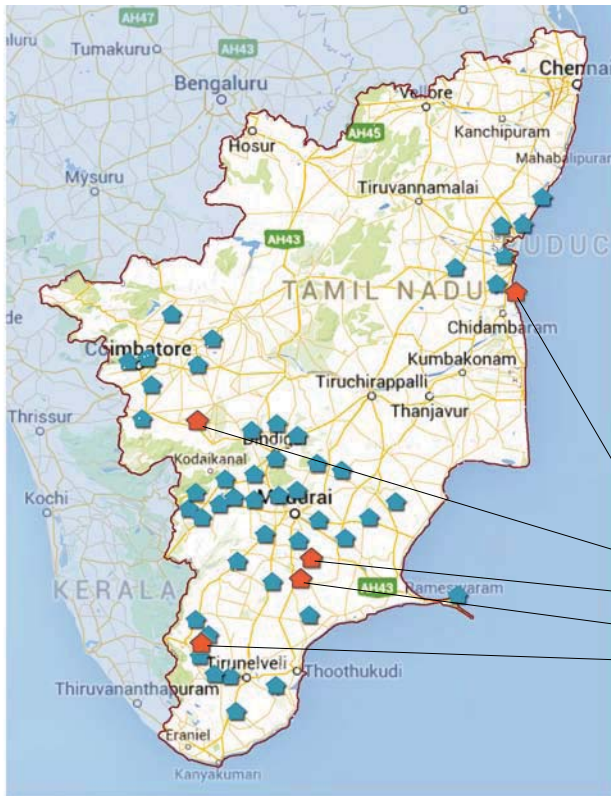
Dr. P. Vijayalakshmi inaugurating the Pavorchatram Vision Centre

to provide a forum where they learn from each other's experiences, interact with the senior leadership team and give feedback to Aravind for constant improvement in the outreach work. In the last year, sponsor's day was organised at Madurai, Tirunelveli, Coimbatore and Pondicherry. Around 250 sponsors attended the programme in each centre.

Aravind's long-time supporter of camps, Mr. Rajagopal from T. Kallupatti was felicitated in

appreciation of his continued support for the past twenty years. Aravind was able to provide sight to more than 10,000 people through the 200 camps he sponsored.

Lions Clubs have always extended a great support to Aravind's outreach initiatives. Exclusive sessions were organised for the new office-bearers of Lions Clubs to create awareness on common eye problems, thus motivating them to contribute to organisation's outreach activities. The seminars were held at Aravind-Pondicherry, Madurai and Coimbatore on August 24, September 28 and November 2 respectively.



Equipping School Teachers to Conduct Basic Vision Screening

Aravind Eye Hospitals actively engage in training school teachers to perform basic vision test for the school children. The participants are also briefed on common eye diseases, refractive errors and low vision in children. Students identified with vision problems by teachers will either be referred to Aravind Eye Hospital or examined at specially organised school screening camps.

- Parangipettai - June 11
- Madathukulam - July 16
- Tiruchuli - September 4
- Panthalkudi - February 23
- Pavorchatram - March 11

■ Existing Vision Centres
■ Launched in the last year

Outreach Performance April 2014 - March 2015

	Total	Madurai	Theni	Tirunelveli	Coimbatore	Pondicherry	Tirupur	Dindigul	Salem	Tuticorin	Udumalpet
Regular Comprehensive Eye Camps											
Camps	1,531	389	108	275	346	303	-	-	67	43	-
Patients examined	347,053	104,284	19,999	46,398	82,368	78,462	-	-	9767	5775	-
Glasses advised	76,556	19,700	5,271	12,033	16,011	20,106	-	-	2,023	1,412	-
Glass ordered	63,401	15,940	4,618	9,565	12,715	17,689	-	-	1,702	1,172	-
On the spot deliveries	49,241	12,212	2,252	7,757	11,496	13,605	-	-	1,019	900	-
On the spot delivery %	78%	77%	49%	81%	90%	77%	-	-	60%	77%	-
Diabetic Retinopathy Screening Camps											
Camps	276	57	43	14	101	57	-	-	4	-	-
Patients screened	39,417	10,595	2,298	1,605	16,805	7,541	-	-	573	-	-
Diabetics identified	16,621	4,881	1,867	670	6,091	2,716	-	-	396	-	-
DR patients identified	2,269	633	176	193	937	299	-	-	31	-	-
Refraction Error Camps											
Camps	213	58	13	28	55	55	4	-	-	-	-
Outpatients examined	50,602	15,092	2,663	5,094	15,712	11,570	471	-	-	-	-
Glasses prescribed	16,023	4,915	956	1,678	4,784	3,586	104	-	-	-	-
Glasses delivered	13,806	4,433	899	1,311	4,059	3,017	87	-	-	-	-
On the spot deliveries	6,941	2,716	491	837	943	1,954	-	-	-	-	-
Eye Screening of School Children- BH											
Schools served	179	45	12	10	38	45	2	2	9	-	16
Teachers trained	1,285	157	112	96	23	838	-	12	47	-	-
Total strength of children	213,118	48,931	14,023	17,148	43,100	54,846	400	1,640	13,877	-	19,153
Children screened by ophthalmologist	69,546	4,232	2,224	903	30,830	9,991	150	172	1,891	-	19,153
Children id. with eye defects	13,677	2,094	1,007	786	3,287	4,022	45	75	880	-	1,481
Eye Screening of School Children - VC											
Schools served	53	43	-	-	8	2	-	-	-	-	-
Teachers trained	975	939	-	-	-	36	-	-	-	-	-
Total strength of children	47,090	39,349	-	-	6,041	1,700	-	-	-	-	-
Children screened by ophthalmologist	7,589	4,352	-	-	3,067	170	-	-	-	-	-
Children id. with eye defects	2,451	2,073	-	-	293	85	-	-	-	-	-
School Children Screening Camps by Lavelle Project (AEH - TVL & PDY)											
Schools served	70	-	-	15	-	55	-	-	-	-	-
Teachers trained	1,654	-	-	-	-	1,654	-	-	-	-	-
Total strength of children	119,904	-	-	14,147	-	105,757	-	-	-	-	-
Children screened by ophthalmologist	14,758	-	-	1,187	-	13,571	-	-	-	-	-
Children id. with eye defects	3,237	-	-	1,034	-	2,203	-	-	-	-	-
Paediatric Camp											
Camps	46	3	5	5	15	18	-	-	-	-	-
Children examined	8,420	391	1,422	869	2,856	2,882	-	-	-	-	-
Refractive errors	320	6	128	29	152	5	-	-	-	-	-
Glasses prescribed	155	4	18	17	114	2	-	-	-	-	-
Glasses delivered	94	3	16	17	56	2	-	-	-	-	-
Other defects identified	428	19	13	71	130	195	-	-	-	-	-
Mobile Van Refraction Camps											
Camps	150	-	-	-	68	-	-	-	82	-	-
Patients screened	27,275	-	-	-	20,387	-	-	-	6,888	-	-
Glasses prescribed	5,154	-	-	-	3,757	-	-	-	1,397	-	-
Glasses delivered	4,080	-	-	-	2,979	-	-	-	1,101	-	-
Vision Centres											
Centres	51	20	7	9	4	7	2	-	-	-	2
New + Review	396,007	158,733	58,206	86,064	30,834	42,719	9,276	-	-	-	10,175
Outpatients / day	26	27	27	34	25	20	15	-	-	-	19
Community Eye Clinics											
Centres	4	2	1	1	-	-	-	-	-	-	-
New + Review	91,271	44,259	20,551	26,461	-	-	-	-	-	-	-
Outpatients / day	74	71	66	85	-	-	-	-	-	-	-
City Centre											
Centres	2	1	-	-	-	1	-	-	-	-	-
New + Review	73,725	50,587	-	-	-	23,138	-	-	-	-	-
Outpatients / day	119	163	-	-	-	75	-	-	-	-	-

ATTENTION 2015

A SYMPOSIUM
ON
**REFRACTORY &
CHILDHOOD GLAUCOMA**

*In commemoration of
World Glaucoma Week (March 8-14, 2015)*

March 14 & 15, 2015

at

**ARAVIND EYE HOSPITAL
& Postgraduate Institute of Ophthalmology
MADURAI**



Health care is a dynamic field and staying updated on new medical developments is essential to ensuring better patient care. At Aravind this is ensured through various education programmes, guest lectures by stalwarts in the field of ophthalmology and grand rounds. Doctors are also sent abroad for advanced training in their area of specialisation.

Apart from the ophthalmology residency programmes and fellowship courses, Aravind also offers customised training and observership programmes in the various clinical and non-clinical areas.

In the year ending March 2015, a total of **478 candidates have been trained** at Aravind.



EDUCATION AND TRAINING

CANDIDATES TRAINED 2014-15

TOTAL CANDIDATES : 544

POSTGRADUATE COURSES

Diploma in Ophthalmology (2 years)	6
Master of Surgery in Ophthalmology (3 years)	12
Diplomate of the National Board (3 years)	14
Post DO DNB (2 years)	14

LONG TERM - OPHTHALMOLOGY FELLOWSHIP

Ant. Segment / Intraocular Lens Microsurgery (2 years)	7
Orbit & Oculoplasty (18 months)	4
Paediatric Ophthalmology & Strabismus (18 months)	10
Glaucoma (2 years)	17
Retina Vitreous (2 years)	16
Cornea (18 months)	16
Comprehensive Ophthalmology (2 years)	3
Fellowship in General Ophthalmology (6 months)	4

SHORT TERM - FELLOWSHIP (FOR INTERNATIONAL CANDIDATES)

Orbit & Oculoplasty (6 months)	2
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SHORT TERM - CLINICAL COURSES

ECCE - IOL Microsurgery (1 month)	15
Small Incision Cataract Surgery (1 month)	31
Phacoemulsification (1 month)	35
Diagnosis and Management of Glaucoma (1 month)	23
Lasers in Diabetic Retinopathy Management (2 months)	35
Vitreotomy (Virtual) (2 weeks)	3
Management of Retinopathy of Prematurity & Paediatric Retinal Disorders (1 month)	6
Orientation to Paediatric Ocular Anesthesia for Anaesthetist (1 month)	1
Neuro-Ophthalmology (3 months)	1

SHORT TERM - PARAMEDICAL COURSES

Optical Dispensing (3 months)	3
OT Techniques (2 months)	2
Refraction Techniques (2 months)	17
Orthoptist (6 months)	2
Ocularist (3 weeks)	6
Fundus Fluorescein Angiography and Ultrasonography (2 months)	7

MANAGEMENT COURSES

Priorities in Eye Care Delivery (1 week)	14
Training and Systems Development for Hospital Administrators / Managers (4 weeks)	27
Training for Eye Care Programme Managers (2 weeks)	35
Project Management for Eye Care (4 weeks)	6
Eyexcel – Expanding Global Eye Care Workforce through Excellence in Training (4 Days)	46
Research Methodology (5 Days)	40
Medical Records Management	9
Community Outreach and Social Marketing of Eye Care Services (4 weeks)	27
Instrument Maintenance - For Technicians (6 weeks)	25
Eye Bank Course	3

CMEs and Training Programmes Held at Aravind

Uveitis CME for General Ophthalmologists

Pondicherry, May 11
This was jointly organised by Pondicherry Ophthalmologists Association and Aravind Eye Hospital, Pondicherry for general ophthalmologists at Hotel GRT Sunway. Aravind faculty including Dr. S.R. Rathinam, Dr. V.K. Anuradha, Dr. Jyotirmay Biswas, Dr. B. Manohar Babu, and Dr. S. Bala Murugan discussed the latest trends in the treatment of uveitis.

Workshop on Instruments Care and Maintenance

Aravind - Salem, June 2 - 4
Aravind - Salem conducted the third workshop on ophthalmic instruments care and maintenance with 11 participants from 7 different hospitals in and around Salem district. Resource persons included Mr. Poornachandran and Ms. Ganga from Aravind - Madurai. The team serviced more than 15 ophthalmic equipment brought by the participants.

Neuro-Ophthalmology Update

Aravind - Madurai, July 19 - 20
Aravind has been conducting Neuro-Ophthalmology workshops every alternate year in one of its tertiary eye care centres. In the last year, this workshop was arranged at Aravind - Madurai. The two day workshop focused on postgraduates and practising ophthalmologists, neurologists and neuro surgeons. A total of 175 delegates participated.

Dr. Karl Golnik inaugurating the Neuro-ophthalmology update in the presence of Dr. Pararajasegaram, Dr. Prem S Subramaniam and Dr. G. Natchiar





Dr. P. Namperumalsamy inaugurating the Annual conference of Tamil Nadu Ophthalmic Association at Coimbatore

Dr. Karl Golnik, Prof. of Neuro-ophthalmology, Cincinatti Eye Institute, University of Cincinnati, USA; Dr. Prem S Subramanian, Wilmer Eye Institute, Johns Hopkins University, Baltimore, USA; Dr. V. Jayakumar, JK Institute of Neurology, Madurai; Dr. K.G. Srinivsan, KGS Scans, Madurai and Dr. Santhosh Joseph, Sri Ramachandra Medical College and Research Institute, Chennai constituted the faculty apart from the Aravind team.

Annual conference of Tamil Nadu Ophthalmic Association

Coimbatore, August 8 - 10

Aravind - Coimbatore organised DARSHAN 2014, the 62nd Annual conference of Tamil Nadu Ophthalmic Association at Codissia trade fair complex, Coimbatore, under the aegis of Coimbatore Society of Ophthalmic Surgeons. The conference was inaugurated by Justice. Santhosh Hegde, Former Lokayukta, Karnataka in the presence of Padmashree Dr. P. Namperumalsamy- Chairman Emeritus, Aravind Eye Care System, Madurai. Around 1,100 delegates participated in the conference, which had a wide spectrum of academic sessions including one on live surgery. 104 trade stalls were put up for ophthalmic industries to exhibit their products.

CME on Retinal Diseases and Hands on Ophthalmoscopy

Aravind - Tirunelveli, August 17

The CME was conducted for general practitioners, general physicians, paediatricians, diabetologists, neurologists, nephrologists, postgraduates and house surgeons. Apart from Aravind team, faculty included Dr. Syed Ibrahim, Paediatrician, Royal Hospital and Dr.V.T.Rajesh, Paediatrician, Muthamil Hospital,

Tirunelveli. The purpose of the CME was to provide the participants with the fundamentals of ophthalmology, practice and advances within the field, as well as to provide an opportunity for networking with professionals of diverse backgrounds in health care.

International Symposium on Diabetic Retinopathy and Vascular Disorders

Aravind - Pondicherry, October 4 - 5

The sixth International Symposium on Diabetic Retinopathy and Vascular Disorders was conducted at Aravind Eye Hospital, Pondicherry in collaboration with L.V. Prasad Eye Institute. A total of 150 participants from all over India participated. Delegates included retina specialists, general ophthalmologists, academicians, researchers and postgraduates in ophthalmology. Apart from the Aravind and L V Prasad

At the CME on Retinal Diseases and Hands on Ophthalmoscopy, Aravind - Tirunelveli





At the International Symposium on Diabetic Retinopathy and Vascular Disorders

faculty, the conference had eminent speakers including Prof. Giovanni Staurenghi, University of Milan, Italy; Dr. Mangat R Dogra, PGIMER, Chandigarh; Dr. Atul Kumar, AIIMS, New Delhi; Dr. Mahesh P Shanmugam, Sankara Eye Hospital, Bangalore; Dr. Pramod Bhende, Sankara Nethralaya, Chennai; Dr. Hemant Murthy, Retina Institute of Karnataka, Bangalore; Dr. Giridhar, Giridhar Eye Institute, Cochin and Dr. Dhananjay Shukla, Ratan Jyoti Netralaya, Gwalior.

62nd Annual National Conference of Indian Society of Anaesthesiologists

Madurai, December 25

Aravind - Madurai hosted the session on *Principle and practice of ophthalmic regional anaesthesia*. There was a live demonstration of needle blocks by Ophthalmic Forum of ISA and Sub - Tenon's block by Dr. Kannan.S,

Consultant, Anaesthesia & Critical Care, City Hospital, Birmingham, UK. He also handled the wetlab session on Sub - Tenon's block using goat's eye. Faculty from Aravind included Dr. A. Ravichandar and Dr. Naresh Babu. Close to twenty post graduates from Aravind participated in this session.

CME on Lids and Lacrimal System

Aravind - Salem, January 4

Aravind - Salem organised the CME which was headed by a team of consisting of Dr. William .B. Stewart, Oculoplastic surgeon and Former Chairman, California Pacific Medical Centre and Dr. Usha Kim, Head, Department of Orbit and Oculoplasty, Aravind Eye Hospital, Madurai at Hotel Chenneys Gateway, Salem. Close to 45 participants from in and around Salem attended the CME.

Dr. A. Ravichandar facilitating the Ophthalmic Anaesthesia workshop





Dr. Bill Stewart with the Aravind team at the CME on Lids and Lacrimal System

Phaco Excel 2015

Aravind - Tirunelveli, January 10 - 11

The field of Cataract and IOL Services has undergone revolutionary changes and the main purpose of this CME was to familiarise the participants with the changes and update them. International and national faculty were invited to discuss the recent advances and developments at length. They included Prof. Chee Soon Phaik, Senior Consultant Ocular Inflammation and Immunology Service at the Singapore National Eye Centre; Dr. Arulmozhi Varman, Medical Director, Uma Eye Clinic, Chennai; Dr. Srinivas K. Rao, Director, Darshan Eye Clinic, Chennai; Dr. Ramesh Dorairajan, Senior Consultant ophthalmologist, Sundar Eye Hospital, Chennai and Dr. Sudeep Das, Senior Consultant, Narayana Nethralaya, Bangalore.

Dr. R.D. Ravindran interacting with the participants at Phaco Excel 2015



Dr. Maria Papadopoulou handling a session at the Symposium on Childhood and Refractory Glaucoma

Symposium on Childhood and Refractory Glaucoma

Aravind - Madurai, March 14 - 15

The symposium was conducted in commemoration of World Glaucoma Week. It highlighted management of refractory glaucomas, including congenital glaucomas and identification and treatment of glaucoma progression. Video skill transfer and live surgery demonstration of glaucoma drainage implants, trabeculectomy and congenital glaucoma surgery were the highlights of the CME. Around 150 participants attended the symposium. Besides faculty from Aravind, Sankara Netralaya, L.V.Prasad Eye Institute and RP Centre, there was Dr. Maria Papadopoulou, Paediatric Glaucoma Consultant from Moorfields Eye Hospital, London, UK. Dr. Papadopoulou spent a week at Aravind - Madurai sharing clinical and surgical skills in Refractory and Childhood Glaucoma with glaucoma staff across all Aravind Eye Hospitals.

Internal Capacity Building

Dr. Ganesh V Raman, Glaucoma Services, Aravind Eye Hospital, Coimbatore

Dr. Ganesh visited four premier ophthalmological training and teaching institutes in the US. At Wilmer Eye Institute, he met and interacted with the stalwarts in the Centre of Excellence for Glaucoma and also attended various update sessions. In Baltimore, he met Dr. Alan Robin, Professor at Bloomberg School of Public Health and observed his work in the clinics and in the operating room.

At Kellogg Eye Centre, Ann Arbor, he observed Dr. Paul Lichter, Dr. Paul Lee, Dr. Moroi Sayoko and Dr. Joshua Stein in their clinical practice. He closely observed the procedure of canaloplasty by Dr. Moroi Sayoko. He got a deeper understanding of diode laser endocyclo photocoagulation (ECP), useful in patients with refractory glaucoma after multiple glaucoma procedures. He also observed the functioning of the department of Ophthalmic Photography.

In the Department of Ophthalmology and Visual Sciences, University of Iowa, Dr. Ganesh met Dr. John Fingert, Dr. Sohan Singh Hayreh, Dr. Wallace Lee Alward and Dr. Young Kwon in the Glaucoma Services. He learnt various unique and comprehensive teaching methods.

He attended the annual conference of American Academy of Ophthalmology (AAO) in Chicago and got an opportunity to meet eminent personalities. He was also invited to help out as an instructor in the Alcon sponsored wetlab for SICS conducted by Dr. Jeff Pattey of Moran Eye Center, University of Utah.

Dr. V. Anitha, Cornea and Refractive Surgery Services, Aravind Eye Hospital, Tirunelveli.

Dr. Ganesh V Raman with Dr. John Fingert, Dr. Wallace Lee Alward and Dr. Young Kwon at Department of Ophthalmology and Visual Sciences, University of Iowa



Dr. Anitha visited Kellogg Eye Centre, Ann Arbor, Michigan and observed under eminent professors including Dr. Kaz Soong, Dr. Mian, Dr. Greene, Dr. Stein and Dr. Sugar their protocols and practice in outpatient clinic, LASIK procedure, operating rooms, contact lens clinic and eye bank. She observed donor preparation for Descemet's Membrane Endothelial Keratoplasty (DMEK).

Dr. Anitha visited Jules Stein Institute and Doris Stein Eye Institute and observed under Dr. Anthony Aldave and Dr. Sophie Deng where she learnt more about steps of DMEK. She also attended the Annual conference of the AAO.

Dr. S. Balamurugan, Uvea Services, Aravind Eye Hospital, Pondicherry

Dr. S. Balamurugan was at Bascom Palmer Eye Institute, Miami, USA with Dr. Janet Davis, clinician and research scientist in the prestigious American Board who illustrated how following basic protocols and collaborating with the latest enhanced depth imaging modalities helped design the best possible treatment plan. Latest tools in Electronic Medical Records were a real treat for him to observe when the shortcuts and troubleshooting methods were brilliantly demonstrated with the help of a scribe.

In Philadelphia, he observed the clinical work of Dr. John Kempen, a premier person in the core group of study design in the uveitis multi-centre trials. He attended the grand rounds of Scheie Eye Institute.

In New York, Dr. Balamurugan observed Dr. David Gritz's clinical and surgical skills of tackling complex cases and discussed with him a dozen of research projects. He got the opportunity to assist the uveitic

Dr. V. Anitha with Dr. Mian at Kellogg Eye Centre, Michigan, US





Dr. S. Balamurugan with Dr. John Kempen

cataract case of Dr. Gritz in his operation suite. At Chicago, he attended the American Academy of Ophthalmology and listened to stalwarts in ophthalmology. He got the opportunity to view videos demonstrating the nuances of phaco-chopping by Dr. David Chang. He attended the Annual Meeting of the American Academy of Ophthalmology.

Dr. Venugopal Reddy, Cornea and Refractive Surgery Services, Aravind Eye Hospital, Tirunelveli

Dr. Venugopal Reddy visited Kellogg Eye Centre, University of Michigan, Ann Arbor, USA during September 14 - October 14 for observing Retina department. He worked with Dr Mark W Johnson, Head of the Retina Services to discuss and observe various macular surgeries. He could learn more about optic disc pit and its management as well as the technique of ILM separation by Rice spatula

Dr. Venugopal Reddy with Dr. Antonio Capone at Beaumont Hospital, Royal Oak, Michigan



for macular hole surgery. He observed management protocols and procedures for treating choroidal melanomas and choroidal secondaries with Dr. Hakan Demerci, an ocular oncology and orbit and oculoplastic consultant. Dr. John Heklenively, specialist in retinal dystrophies shared his idea of using Co enzyme Q and immunosuppressants (Mycophenolate Mofetil) for dystrophies. Dr. Paul Lee, Director of Kellogg Eye Centre shared his experiences with neovascular glaucoma surgical management by Pars plana irrectomy and Drainage tube implant into vitreous cavity. He observed the clinics at Associated Retinal Consultants (ARC), Beaumont Hospital, Royal Oak along with Dr Michael T Trese, Dr. Antonio Capone, Dr. George Williams and Dr. Tarek Hassan and learnt about various paediatric retinal diseases and their management. He also attended the retina subspecialty meeting of the American Academy of Ophthalmology.

Dr. R. Sharmila, Glaucoma Services, Aravind - Madurai
Dr. Sharmila visited Duke University, Durham, North Carolina, US and spent a week there with Dr. Sharon Freedman, pioneer in paediatric glaucoma observing various surgeries and examination techniques. She also discussed several prospective collaborative studies at Aravind.

Dr. Rupa A, Paediatric Ophthalmology and Adult Strabismus Services, Aravind Eye Hospital, Madurai
Dr. Rupa visited Kellogg Eye Centre, Department of Ophthalmology and Visual Science, University of Michigan, Ann Arbor from September 15 - October 13 and observed all the surgical procedures under Dr. Monte Del Monte MD, FAAP, Division Chief, Paediatric Ophthalmology and Adult Strabismus.

Dr. Rupa with Dr. Monte Del Monte at Kellogg Eye Centre, University of Michigan, Ann Arbor



She observed vessels sparing muscle transposition surgery for 6th nerve palsy. At the American Academy of Ophthalmology conference, she got to learn about diagnosis and treatment of common and complex strabismus as well as other innovations in paediatric ophthalmology. She also attended instruction courses related to retinal dystrophies and genetic approach to inherited retinal dystrophies.

She learnt about electrophysiological tests and how to interpret the results and the working pattern of retinal dystrophies. She got to see electroretinography done on mice. She also met Dr. Robin Ali who is a pioneer in stem cell research and gene trials and discussed prospective research in children having retinal dystrophies and treatment.

Residents Social Responsibility Programme

Every year Aravind's residents involve in social responsibility programmes with a view to uplift the lesser privileged in the society. This programme is designed to celebrate the memory of Mr.R.S.Ramasamy, founding trustee of Aravind and also to make the residents understand the value of helping the down trodden in the society. This time the residents arranged for an exhibition and sales of handicrafts made by blind people. There was also a live demonstration of handicrafts making by the blind people.

At the handicrafts exhibition by the blind people



Conferences Attended Elsewhere

Vision 2014 - International Conference on Low Vision

Melbourne, Australia, March 31 - April 3

DR. K. ILANGO

- *Quality of life of person with low vision*

World Ophthalmology Congress, 2014

Tokyo, Japan, April 2 - 6

DR. N. VENKATESH PRAJNA

- *HR challenges in ophthalmology*

He also served as Chairman for the session on "The Human Resource challenge - How do we deal with it".

As part of collaboration, he attended American Academy of Ophthalmology meeting with Dr. Gregory Skuta, President - AAO; Dr. Abbott Richard, Head of the AAO Network and Ms. Jane Aguirre, Vice President, Global Alliances of American Academy of Ophthalmology. He discussed with them the ONE Network, Resident hub and other future collaboration towards improving residents education and training programme.

DR. GEORGE

- *Aurolab Aqueous Drainage Implant at the symposium on affordable, high quality eye care*

DR. NARESH BABU

- *2cc 100% Sf6 as tamponading agent in macular hole surgery*

Annual Conference of American Society of Cataract and Refractive Surgeons (ASCRS)

Boston, Massachusetts, USA, April 25 - 29

DR. HARIPRIYA ARAVIND

- *Impact of non-physician cataract counselors on patients' surgical knowledge and satisfaction*

Dr. N. Venkatesh Prajna with Dr. Gregory Skuta, Dr. Richard Abbott and Ms. Jane Aguirre at WOC, Tokyo, Japan



- Skills Lab STS6: ECCE/SICS
- Challenging cases
- Aravind pseudoexfoliation study: 1 year postoperative results
- Clinical experience of centurion vision system
- Iris fixation of IOL
- Intraocular lens implantation in the absence of capsule support
- Retrofixation of rigid IOL
- Challenging phaco cases: Combining techniques and technology
- Posterior capsule rupture and zonular dialysis management (Instruction course)

Courses

- Transforming technique and technology: 3D video course in challenging cataract surgery
- Intraocular lens relocation or explantation: Why, when and how?
- Soft cataracts and posterior polar cataracts

DR. NEERAJ KUMAR AGARWAL

- Comparative analysis of optical biometry versus immersion in silicon filled eye
- Virtual reality versus donor eye for learning capsulorhexis (Poster)

National Diabetic Retinopathy Summit

Hyderabad, April 12 - 14

Hosted by Public Health Foundation of India (Indian Institute of Public Health, Hyderabad) in partnership with the London School of Hygiene and Tropical Medicine and supported by The Queen Elizabeth Diamond Jubilee Trust.

DR. P. NAMPERUMALSAMY

- Aravind Eye Care System approach to diabetic retinopathy management.

3rd Foresight, Intercontinental

Hongkong, July 19

DR. HARIPRIYA ARAVIND

- Importance of achieving targeted IOP during phaco surgery and Benefits and Challenging Pathology

Dr. P. Namperumalsamy at the National Diabetic Retinopathy Summit, Hyderabad



Annual Conference of US Association for Research in Vision and Ophthalmology (ARVO)

Orlando, Florida, USA, May 4 - 8

Poster Presentation

DR. P. SUNDARESAN

- Involvement of collagen - related genes and its influence on keratoconus and primary open angle glaucoma patients in India

DR. S. SENTHIL KUMARI

- Ascorbate concentrations and polymorphisms in sodium transporter vitamin C genes in human plasma, aqueous humor and lens nucleus in an ascorbate depleted setting

BIBHUTI BALLAV SAIKIA

- Long PCR based analysis of whole mitochondrial genome of LHON patients

Bibhuti received the ARVO Foundation for Eye Research (AFER) travel grant to attend the meeting.

DR. SHARMILA

- Safety and efficacy of cataract surgery with concomitant sclerostomy in nanophthalmos

DR. GOWRI PRIYA CHIDAMBARANATHAN

- Live imaging of limbal niche in limbal stem cell deficiency patients (Oral Presentation)

She attended a one day ARVO education course on cell therapy in ocular disease: Emerging research and therapy on May 3.

14th National Convention of National Institution for Quality and Reliability

Chennai, June 21

DR. G. NATCHIAR

- Organisation culture

Annual Meeting of the Eye Bank Association of America

Portland, Oregon, USA, June 27 - 28

DR. M. SRINIVASAN

- Transmission of diseases from donor corneas (poster)

Aravind team at the Annual Conference of US-ARVO





Dr. M. Srinivasan, Dr. P. Vijayalakshmi and Mr. D. Saravanan during the Annual Meeting of the Eye Bank Association of America, Portland, USA

Annual Conference of the Indian Intraocular Implant and Refractive Society (IIRSI)
Chennai, July 5 - 6

Dr. N. Venkatesh Prajna attended the annual conference of the Society.

Annual Meeting of Vision 2020
Angamaly, Cochin, July 5 - 6

MR. R. MEENAKSHI SUNDARAM

- Planning an outreach camp
- Vision Centre model of Aravind
- Need assessment for outreach

He also moderated a session in the same track.

MR. RANJITH

- Spectacle dispensing in outreach

MS. DEEPA

- Using data to manage high volume OPD

MS. PRIYA

- Dealing with the problem of refractive error in our communities

SR. PREMA

- Ensuring compliance for better outcome

SR. ARUL DIVYA

- OT sterilisation protocols in a high volume set - up

SR. ARUMUGA SELVI

- Quality assurance in high volume cataract surgery

MS. USHALINI

- Incident reporting for a safe hospital

MS. UMAPRIYA

- Leadership development for paramedics

MS. GOMATHI

- The role of refractionists in eliminating needless blindness

MS. FLORA

- Role of Vision Centres in low vision care

Prevention of Corneal Ulcer Meeting

Nepal, August 18 - 20

DR. M. SRINIVASAN

- Management of bacterial ulcers, steroids in bacterial ulcers (SCUTT study)

International Conference on Transforming Health care with Information Technology

Calcutta, September 5 - 6

DR. P. NAMPERUMALSAMY

- Information technology in eye care.

Talk on Aravind Model at Conscious Lab

London, September 6 - 7

DR. R. VENKATESH

- Spirituality in business - The Aravind model.

Aravind team at the Annual Meeting of Vision 2020, Angamaly, Cochin



Annual Conference of Ocular Trauma Society of India

Amritsar, September 6 - 7

DR. KIM

- Unusual IOFB

DR. JATINDER

- Traumatic macular hole - When to jump in

Euretina

London, UK, September 11 - 14

DR. NARESH BABU

- 2cc 100% SF6 as tamponading agent in macular hole surgery

DR. ANAND RAJENDRAN

- A comparative analysis of the efficacy of subthreshold micropulse 577 nm yellow laser versus 577 nm green laser for central serous chorioretinopathy

Annual Conference of Glaucoma Society of India

Bhubaneswar, September 12 - 14

DR. S.R. KRISHNADAS

- Glaucoma care in under developed communities
- Does glaucoma vary ethnically in populations

DR. GEORGE

- Nanotechnology in glaucoma
- GDD - AADI

DR. MANJU PILLAI

- Gonioscopy
- Optic nerve head evaluation
- How does patient education matter in management of glaucoma patients?

Posters

DR. MANJULA

- Changes in intraocular pressure after YAG PI

DR. SNEHA SHARMA

- Changes in intraocular pressure after YAG PI

DR. S. KAVITHA

- Manual small incision cataract surgery combined with vitreous tap - A safer way to battle phacomorphic glaucoma

DR. LIP CHAKRAVARTHY

- Clinical versus image based diagnosis of glaucoma : exploring investigation for fundus based screening devices

DR. MRUNALI

- Effect of Nepafenac on central macular thickness following phaco trabeculectomy

EUCORNEA and ESCRS

London, UK, September 12 - 13

DR. R. VENKATESH

- Phacoemulsification plus CO₂ laser assisted sclerectomy

Video session

- Anterior segment optical coherence tomography in posterior polar cataract.

DR. K. TIRUVENGADAKRISHNAN

Instruction courses

- Phaco in difficult situation
- Phaco in PPC patients
- Phaco in subluxated patients
- SICS in compressed cornea

Advisory Board Meeting of the International Vision Academy

Singapore, September 19

Dr. S. Aravind attended the Board of Advisors meeting as well as the launch of The International Vision Academy, an Essilor initiative.

Dr. R. Venkatesh and Dr. K. Tiruvengadkrishnan at ESCRS, London





Dr. S. Aravind at the advisory board meeting of International Vision Academy, Singapore

Annual Conference of Sri Lanka Ophthalmologists Association

Colombo, September 14

DR. KALPANA

- Secondary IOL post Traumatic cataract surgery
- Muscle transposition in strabismus and best toric outcome
- Visual rehabilitation of post paediatric cataract surgery

The Eye Network Conference

Rotterdam, Netherlands, September 23 - 27

DR. HARIPRIYA

- The story of Aravind
- Cataract pathway at Aravind

Asia Pacific Society of Ophthalmic Plastic and Reconstructive Surgery, Delhi

Delhi, September 26 - 28

DR. MANEKSHA

- Congenital lacrimal gland fistula (poster)

Dr. Haripriya at the Eye Network Conference, Rotterdam, Netherlands



Dr. R. Jayagayathri and Dr. Dayakar Yadalla also attended the conference.

Annual Conference of the American Academy of Ophthalmology

Chicago, USA, October 16 - 21

DR. N. VENKATESH PRAJNA

- Mycotic ulcer clinical trial
- Fungal keratitis management : Best drugs
- Performing surgery enhancing vision

DR. S. BALAMURUGAN

- Comparison of visual outcome : Efficiency of lasik Vs. zyoptix
- Strategy to prevent recurrent Uveitis

DR. LALITHA PRAJNA

- Acanthamoeba keratitis : Microbiological tests for diagnosis

DR. S.R. RATHINAM

- Tuberculosis

DR. REVATHY

- Acanthamoeba keratitis: Treatment controversies in Acanthamoeba keratitis - steroids and early therapeutic keratoplasty (Instruction course)

Dr. Rupa also attended the conference. Dr. Revathy and Dr. Jeena Mascarenhas visited the Cornea Clinic, University of Illinois, Chicago in October and observed and interacted with Dr. Elmer Tu who has vast experience in managing infective keratitis cases.

National Conclave on Quality in Public Health

New Delhi, November 3 - 4

Organised by National Health Systems Resource Centre (NHSRC), Ministry of Health, India.

DR. R.D. RAVINDRAN

- Quality improvement in health care

Dr. R.D. Ravindran at the National Conclave on Quality in Public Health, New Delhi



Annual Conference of Asia Pacific Academy of
Cataract and Refractive Surgeons (APACRS) 2014
Jaipur, November 12 - 14

DR. HARIPRIYA ARAVIND

- Centurion Presentation : Importance of achieving targeted IOP during phaco surgery and benefits and challenging pathology
- Updates on the management of complications presentation: If PC rifts and nucleus drifts
- Complex cataract surgery master class presentation: IOL implantation in the absence of capsular support
- Hoya lunch symposium presentation: My experience with iSER 35I Toric IOL
- Cataract Aravind pseudoexfoliation (XFS) study (APEX): Intraoperative, immediate post-operative and 2 years post-operative results

DR. MADHU SHEKHAR

- Comparative study of penetrating Vs blunt ocular trauma on axial length

Authors - Madhu Shekhar, Aravind Haripriya, Durga Prasad Nayak

DR. TANPREET PAL SINGH

- Higher order aberrations of age related cataract
- Clinical profile and visual outcome of acute post cataract endophthalmitis in a tertiary eye centre

DR. INDIRA DURAI

- Comparative outcomes of phacoemulsification and manual small incision cataract surgery in patients with hard nuclear cataract

DR. NIMMI RANI

- Analysis of the ico-oscar grading scale in the assessment of acquisition of surgical skill of phaco trainees

Authors - Dr. Nimmi Rani, Dr. Haripriya Aravind, Dr. Prashantgupta, Dr. Mukta Prasad

DR. JAMUNA

- Resurgery following phacoemulsification - A tertiary institution experience

Aravind team at the APACRS Conference, Jaipur



DR. MUKTA PRASAD

- Safety and efficacy of phacoemulsification in cataract with iris coloboma

Authors - Dr. Mukta Prasad, Dr. Nimmi Rani, Dr. Haripriya

DR. FATHIMA, DR. SHIVAKUMAR, DR. R. RAMAKRISHNAN

- Video: Retropupillary iris claw IOL implantation and explantation cases

DR. MANORANJAS DAS

- Outcome of PKP + Sutureless SFIOL

DR. MADHU UDDARAJU

- Bilateral concentric stromal ring opacities of the cornea

DR. HEMALATHA GUDISEVA

- Corneal bee sting injury

DR. SAYALI PRADHAN

- Combined sutureless SFIOL + PKP in patients with bullous keratopathy requiring lens implantation or exchange

DR. MOUSHMI CHOWDHARI

- Outcome of PKP + sutureless SFIOL

DR. PALANISWAMY

- Pre operative assessment of posterior capsule using ASOCT in patient with PPC undergoing Phacoemulsification

DR. PALLOVEE

- Secondary intraocular lens implantation in paediatric aphakia

DR. A. FATHIMA, DR. SHIVAKUMAR AND DR. R. RAMAKRISHNAN

- Iris claw IOL (video)

Second National Social Innovation Seminar

Pune, November 17

Dr. R.D. Ravindran was the panelist at the discussion on Empathetic models of social innovation: Filling the gaps.

14th Annual Meeting Uveitis Society of India

New Delhi, November 22

DR. S.R. RATHINAM

- Aetio-pathogenesis of intraocular inflammation
- Uveitis scenario in India

DR. S. BALAMURUGAN

- A rare case of foveolitis
- Managing a challenging case of choroiditis with avascular necrosis of femur

DR. B. MANOHAR BABU

- Update on ocular toxoplasmosis

DR. ANURADHA .V.K

- The curious case of a choroidal granuloma

12th Meeting of the International Strabismological Association (ISA)

Kyoto, Japan, December 1 - 4

Poster Presentation

DR. SANDRA GANESH

- Surgical outcome of graded Y split in patients in duane's retraction syndrome



Dr. S.R. Rathinam at the Uveitis Society of India conference, New Delhi



Dr. P. Namperumalsamy at the Annual Conference of Vitreo Retinal Society of India

DR. KALPANA NARENDRAN AND DR. SANDRA GANESH

- Surgical results of temporal transposition of superior rectus muscles in Duane's Retraction Syndrome (DRS) and lateral rectus palsy.

DR. KALPANA NARENDRAN

- The prevalence of long-term sequelae in pre-term children diagnosed with Retinopathy of Prematurity (ROP)

Annual Conference of Vitreo Retinal Society of India

Agra, New Delhi, December 5 - 7

DR. P. NAMPERUMALSAMY

- My journey as a vitreo retinal surgeon in India from 1974

DR. R. KIM

- Recent classification on AMD

DR. NARESH

- Primary vitrectomy Vs scleral buckling

DR. MANEESH

- Regression of retinopathy of prematurity? A pilot study

DR. DHANYA

- A case of Recalcitrant macular edema in a diabetic patients with radiation Retinopathy (poster)

DR. V.R. SARAVANAN

- MIVS in rhegmatogenous retinal detachment - ocular toxoplasmosis

DR. GEORGE J MANAYATH

- Visudyne experience in central serous chorio retinopathy

DR. PARAG K. SHAH

- Scleral auto graft for management of chronic maculopathy associated with optic nerve head pit
- Safety and efficacy of simultaneous bilateral 25 gauge lens sparing vitrectomy for vascularly active stage 4 retinopathy of prematurity.

Asia Cornea Society Meeting

Taipei, Taiwan, December 11 - 13

DR. N. VENKATESH PRAJNA

- Proteomics of *Aspergillus flavus*

DR. MANORANJAN DAS

- Outcome of PKP + sutureless SFIOL, sutureless and glueless innovative technique

Annual Conference of Strabismus and Paediatric Ophthalmological Society of India

Pushkar, Rajasthan, December 13 - 14

DR. SANDRA GANESH

- Small incision strabismus surgery

62nd Annual National Conference of Indian Society of Anaesthesiologists

Madurai, December 25

DR. A. RAVICHANDAR

- Choosing and preparation of patients for regional blocks

DR. NARESH BABU

- Retrobulbarhaemorrhage and globe perforation

Annual Conference of the Society for Mitochondrial Research and Medicine

Manipal, December 8 - 9

DR. P. SUNDARESAN

- Establishment of retinal transcriptome gene expression signature for diabetic retinopathy using human cadaver eye

Annual Conference of the Cornea Society of India

Chennai, December 19 - 21

DR. ANUJA

- Poster - Keratomycosis caused by pigment fungi

DR. N. VENKATESH PRAJNA

- Proteomics of fungal pathogens causing keratitis

- Presumed stromal niche cells - bench to bedside

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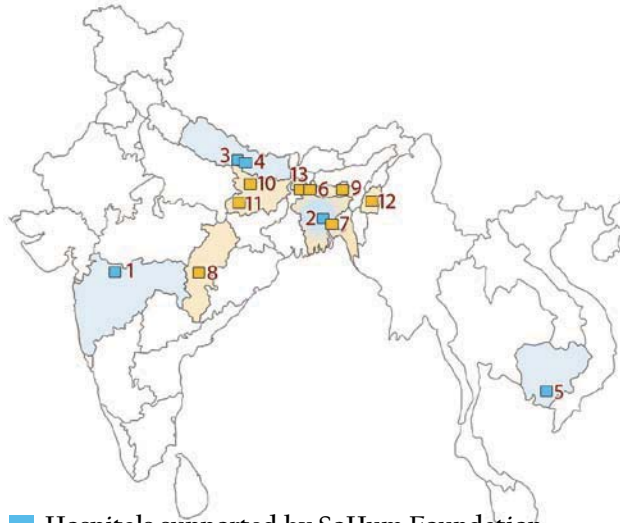


LAICO till recently focused its energy and resources working essentially with non-for-profit eye hospitals. The rare requests from Government hospitals were accommodated as and when received. Recognising that governments are a significant provider of eye care in India and several other countries, LAICO opened up new relationships and opportunities. Governments also play a major role through enabling policies for effective eye care services and budgeting required resources for scaling. LAICO now works very closely with Centre for Innovation in Public Systems (CIPS) and has been engaging with many of the state governments in India. This year's work at LAICO reflects this additional focus.



Consultancy and Capacity Building

LAICO's Consulting Hospitals: 2014-15

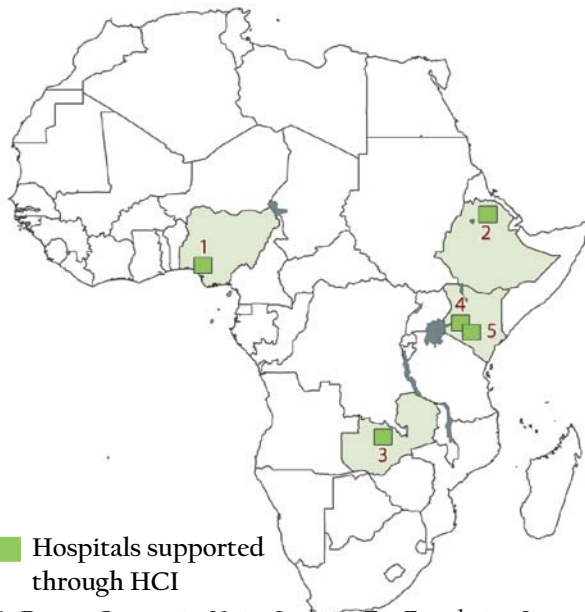


Hospitals supported by SoHum Foundation

1. PBMA P.E Taty Patil Eye Hospital, Jalgaon, Maharashtra, India
2. Ispahani Islamia Eye Institute and Hospital, Jamalpur, Bangladesh
3. Bharatpur Eye Hospital, Bharatpur, Chitwan, Nepal
4. Branch of Bharatpur Eye hospital at Thori, Nepal
5. CARITAS Takeo Eye Hospital, Cambodia

Hospitals supported by Lavelle Fund

6. Deep Eye Care Foundation, Rangpur, Bangladesh
7. Voluntary Association for Rural Development, Comilla, Bangladesh
8. Chhattisgarh Eye Hospital, Raipur, Chhattisgarh, India
9. Bansara Eye Hospital, Shillong, Meghalaya, India
10. Ramakrishna Mission Sevashrama Eye Hospital, Muzaffarpur, Bihar, India
11. DORD Eye Hospital, Daudnagar, Bihar, India
12. Shija Eye Care Foundation, Imphal, Manipur, India
13. BNSB Eye Hospital, Dinajpur, Bangladesh



Hospitals supported through HCI

1. Deseret Community Vision Institute, Eye Foundation, Lagos, Nigeria
2. Fitsum Birhan Speciality Eye Clinic, Mekelle, Ethiopia
3. Kitwe Central Hospital, Kitwe, Zambia
4. Innovation Eye Centre, Kisii, Kenya
5. Upper Hill Eye and Laser Centre, Nairobi, Kenya

LAICO's services were extended to 4 more hospitals in the last year thus taking the total number of partnering hospitals to 317 across the globe. Staff from these hospitals and other organisations were trained in effective eye care delivery through several management courses. In the last year, 160 eye care professionals attended these eye care management training programmes.

Under the Hilton Cataract Initiative to enhance Cataract Surgical Rate in sub-Saharan Africa, LAICO in collaboration with Johns Hopkins Bloomberg School of Public Health visited five hospitals in Kenya, Nigeria, Zambia and Ethiopia from June 26 to July 9. At the end of the visit, a review meeting was organised bringing together all the five partner hospitals to come up with concrete ideas for further development.

LAICO initiated the Lavelle supported capacity building project for 25 eye hospitals in the Indian subcontinent. Visits were made to eight eye hospitals in India and Bangladesh. Vision building workshops were conducted.

As part of SoHum project to enable eye hospitals to achieve operational excellence and financial sustainability, LAICO partnered with five eye hospitals in India, Bangladesh, Nepal and Cambodia.

Enhancing Eye Care Services in China

Vision in Practice (ViP) based in Shanghai, China has been functioning since 2012 with a goal to enhance eye care in the country by creating a successful eye care delivery model and demonstrate to eye care providers in China. Towards this goal, they approached eye hospitals and Aipu Eye Hospital was one among them. LAICO is the technical partner for ViP in this particular initiative.

Dr. Frederick and Ms. Dhivya at Deep Eye Foundation, Bangladesh





Dr. Dayakar Yadella and Ms. Sasipriya at Shija Eye Care Foundation, Manipur

The baseline details about the hospital were collected to understand the clinical services, infrastructure, human resources and performance for the recent past 2 years. Needs assessment visit was made in February 10 - 13. Following this, a team of nine members from Aipu Eye Hospital and ViP will attend the vision building workshop at LAICO in the first week of April 2015.

Towards Developing Paediatric Eye Care Services

Madagascar, with 9.5 million children under the age of 14, has only one paediatric ophthalmologist. Over 400 children in the country are born with or develop blindness due to cataract each year. Early intervention is critical to ensure good vision for life, but fewer than 20% of the children receive the required treatment. Seva, in partnership with Kilimanjaro Centre for Community Ophthalmology (KCCO), is one of the largest providers of eye care in the country. Aravind

Mr. Ganesh Babu and Dr. Madhu Shekhar at Aipu Eye Hospital, China



Mr. Sanil Joseph on a needs assessment visit to DORD Eye Hospital, Bihar

was approached by Seva to provide inputs towards developing an effective children's eye screening model. Ms. Priya, Manager - Paediatric Ophthalmology Services, Aravind - Pondicherry along with a team from Seva - Canada visited the group of SALFA Eye Hospitals and the University Hospital at Madagascar during January 9 - 23. During the visit, she trained the hospital staff to train school teachers to identify vision problems in children and to conduct screening camps for school children. She also did an evaluation of the paediatric and general ophthalmology departments in these hospitals.

Ms. Priya visited Geta Eye Hospital, Nepal during November 8 - 15 to do a pilot study on school children screening and trained the staff on the process. Necessary recommendations were given to conduct school screening camps periodically and in a streamlined manner.

Ms. Priya with the team at Salfa Eye Hospital, Madagascar



Extending Support towards Establishing Vision Centres

In India while many of the states have efficient eye care delivery systems, a few are struggling to meet the growing eye care demands of the people. There have been requests from the Delhi Government to enhance eye care services in the capital region. Many of the states have expressed an interest to explore the tele-medicine enabled Vision Centres as a way to provide eye care in remote areas. In this context, Centre for Innovations in Public Systems (CIPS), Government of India invited Aravind to share its expertise and technical support towards establishing vision centres in the states of Jharkand, Madhya Pradesh and Uttarakhand. Mr. R.D. Thulasiraj, Executive Director, LAICO met with Mr. D. Chakrapani IAS, Director, CIPS and Chief Secretary and other senior officials of the Government of Jharkand to discuss establishment of Vision Centres at Ranchi and other parts of Jharkhand.

October Summit 2014

Workshops on Patient Safety and Patient Satisfaction

Patient safety is an emerging Health care discipline, where many Health care organisations proactively

engage themselves to provide safer health care for the public. In spite of the advances in technology as well as knowledge in medical field and presence of dedicated staff, evidence shows that things will and do go wrong in large volume organisations, sometimes harming the patients. Arranged in collaboration with Seva Foundation and Orbis from October 1 - 3 at LAICO, these workshops brought together eye hospitals to explore errors that commonly occur in eye hospitals. Various patient safety strategies and techniques and models to measure patient satisfaction were discussed. It presented leading institutions that have successfully implemented these measures and actively used it for continuous improvement. A total of 63 people participated in the workshop.

Paradigms for Effective Leadership

Leadership and governance play an important role in determining the way an organisation operates and its outcomes. Considering this strong influence of leadership in the performance of any organisation, this workshop aimed at exploring the paradigms that enhance the effectiveness of leaders and to discuss the ways to make leadership, a conscious effort. Held at Aravind - Pondicherry on October 7 and 8, it was attended by 58 participants from China, Bangladesh, Paraguay, Guatemala, Peru, USA and India.

Participants to Workshops on Patient Safety and Patient Satisfaction





Inauguration of the Workshop on Paradigms for Effective Leadership, participants to the session

Serving the Underserved Regions through District Planning 2.0

It is estimated that in India over six million cataract surgeries are done annually, resulting in a Cataract Surgical Rate (CSR) of about 5,000. While such a CSR is very impressive, especially amongst the developing countries, about half of the states and districts would be performing less than this average, with some of the districts with very low performance. A more serious implication of this is the fact that people in those districts, for no fault of theirs are denied the eye care that they need. This workshop deliberated on the ground realities and practical challenges faced by underserved districts to develop an appropriate

intervention model that could be deployed for enhancing eye care delivery in the states of Assam, Tripura, Rajasthan, Chhattisgarh, Uttar Pradesh, Orissa and Karnataka. The participants included major eye care providers from these states, representatives from Ministry of Health, senior representatives from the National Programme for Control of Blindness (NPCB), Government of India and various states as well as heads of INGOs and representatives from VISION 2020. The workshop was held at LAICO from October 31 - November 1 and was sponsored by CIPS, SightSavers, VISION 2020 India and Seva Foundation, USA. As part of the workshop, Dr. Jayanti S Ravi, a senior IAS officer and Labour Commissioner, Government of

Participants at the Workshop on Serving the Underserved Regions through District Planning 2.0





Seva Global Sight Initiative meeting at Aravind - Pondicherry

Gujarat shared her thoughts on Dr. G. Venkataswamy, the founder of Aravind Eye Hospitals, through a beautiful blend of music and story-telling.

Seva - Global Sight Initiative

Seva's Global Sight Initiative plans to engage 100 eye hospitals to perform at least one million additional cataract surgeries annually within a sustainable framework by 2020. Towards this, Seva organised a meeting at Aravind - Pondicherry on October 5 - 6 to meet and renew connection with members of the GSI network. This meeting had 44 participants from Seva partners in USA, India, Bangladesh, Egypt, Guatemala, Nepal and Peru. The discussion also helped develop clarity on the GSI goal and identify strategies and actions to achieve it. As a follow up action, on February 17 - 18, a planning meeting was held at LAICO to develop action plans that would move LAICO forward in its mentoring efforts while contributing to the overall GSI goal of 1 million additional surgeries annually by 2020. The meeting reviewed the strategic plans of Aravind as a whole and determined how LAICO's mentoring activities fit within and relate to the organisation's broader strategy. The meeting also aimed to identify gaps and the required resources to strengthen LAICO's mentoring capacity, including potential funding sources.

Teaching and Training

Lack of qualified management professionals often hinders the effective delivery of eye care in many parts of the world. To address this gap, LAICO regularly offers courses for various cadres of eye care professionals. Till date, close to 3,000 eye care professionals from around 73 countries have been trained at LAICO.

AUROSIKSHA - Online Learning Resource for Eye Care Personnel

Aravind's online learning platform, Aurosiksha is being utilised by 1879 users from Africa, Asia, Europe, North

Aurosiksha team preparing learning modules





Ms. Sasipriya addressing the participants at PRISM 2014

America, Australia and South America. In September 2014, Vision Centre technicians of Government Eye Hospital, Tripura were evaluated through online exams in Anatomy, Physiology, Pharmacology, Optics and Refraction. Monthly exams are conducted online for the marketing executives of Aurolab located in various parts of India throughout the year. Aurosiksha is looking forward to launching the sessions as a teaching module to augment effective learning.

PRISM

PRISM, the annual national conference organised by fellows in eye hospital management and managers across the Aravind centres aims to provide new insights into hospital management for professionals and students in this sector through sharing of experiences by professionals from diverse fields of medicine and management. While there has been an immense wave of development in health care in terms of technology and techniques, quite often, the focus of hospitals has moved away from affordable patient care. PRISM 2014 held at Aravind - Coimbatore on April 12 - 13 focused on health care that is accessible and affordable to the common man. A total of 82 participants including delegates attended the conference. Notable speakers included Dr. Ashwin Naik, Founder and CEO, Vaatsalya Hospitals, Karnataka; Mr. Vijaybhasker Srinivas, Head Process Control - Lifespring; Dr. Naveen, Associate Vice President - Operations at HCG, Bangalore; Dr. Junaid Rahman, Medical Superintendent, Government Hospital, Ernakulam; Dr. Komal Prasad, Consultant Neuro-surgeon, Narayana Hrudayalaya, Bangalore; Dr. Malathi, Head - Medical Services, Manipal Hospital, Bangalore, Dr. Badari Datta, Head of Quality at Baptist Hospital, Bangalore, and Dr. Arjun

Rajagopalan, Medical Director, Sundaram Medical Foundation, Chennai.

Onsite Training

Aravind was invited to run a two week instruments maintenance course at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya during May 12 - 23 for Biomedical Engineers / Technicians working for the Ministry of Health, Kenya in different counties spread over the country. Fred Hollows Foundation, Kenya sponsored the programme which was attended by fifteen participants. Prof. V. Srinivasan, Mr. Poornachandran and Ms. Kasthuri ran the programme. An instruments maintenance camp was held at Sabatia Eye Hospital where the trainees were able to service many ophthalmic instruments. The highlight of the course was the commissioning of a new B-Scan unit that was a gift for one of the hospitals and

Prof. V. Srinivasan, Mr. Poornachandran and Ms. Kasthuri at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya





Patient being trained to use low vision device at Aravind - Coimbatore

could not be put into use for several months for want of some details.

Following an invitation from Orbis International, an instrument maintenance course of one week duration was held at Ulaanbaatar, Mongolia from July 26 - 31. Prof. V. Srinivasan and Poornachandran volunteered to run the programme along with the Orbis staff. The course was organised by the Ministry of Health and Family Welfare, Government of Mongolia. A total of 26 participants attended the programme.

Projects

Lowvision Screening, Treatment and Service Provision Project for Children in Coimbatore Supported by USAID

The prevalence of low vision is 1.05% in India. Only about 3% of all blind and visually impaired children here have access to basic low vision care. Early intervention could potentially minimise long-term permanent visual disability. Supported by USAID, Aravind - Coimbatore, has initiated a two year project in December to establish a rehabilitation centre for children with low vision which will also provide early intervention and appropriate referral to support services. The project aims to identify and refer children with low vision in communities across Coimbatore through community screening and referral. During this screening process, if children are identified with other treatable causes of childhood blindness including refractive errors, amblyopia, cataract and strabismus, appropriate and subsidised treatment will be offered. The project also



Dr. Manish Tandon examining a neonate for ROP

aims to upgrade the existing low vision services to include vision rehabilitation.

USAID Vision Screening Project in Children in the Age Group 0 - 6 Years

The two year USAID supported project commenced in February 2015 to build sustainable capacity and processes to effectively address the problem of visual impairment and blindness among children in the age group of 0 - 6 years in the service area of Aravind - Pondicherry. The main objective is to reach 400,000 children in the age group of 0 - 6 years in the three adjoining districts of Pondicherry through comprehensive eye screening and providing intervention as required - preventive, curative (medical and surgical) and rehabilitative in nature. Screening technologies, such as plusoptiX S09 vision screener is used for screening of very young children for early diagnosis and treatment. The project also aims to improve awareness on paediatric eye problems among general physicians, pre-school teachers, paediatricians as well as the community at large. It also aims to develop a strong referral system at the grass root level by involving different stakeholders in the community and a community based model of providing eye care services to children below 6 years of age.

USAID ROP Project

Ensuring healthy eye and quality life in premature infants is a two year project started in December 2014 at the department in Aravind - Madurai with the support of USAID. The project aims to develop a comprehensive Retinopathy of Prematurity (ROP) model that can be replicated in other setups. It aims to increase early

detection of ROP through awareness creation among different stakeholders, screening preterm babies for ROP in the government and private NICUs, developing a referral network system and building and improving capacities of ophthalmologists and NICU staff through training programmes, CMEs and IEC materials. The hospital has entered into a MoU with Government Rajaji Hospital, Madurai to screen preterm babies in the NICU as well as established contacts with various NICUs in and around the city and subsequently two ophthalmologists have been trained in ROP screening. Close to 230 babies were screened under the project during December 2014 - March 2015. Dr. Nagamani Beligere, Developmental Paediatrician, University of Illinois Medical Centre, Chicago was at Madurai to work closely with the Paediatric Ophthalmology and Vision Rehabilitation departments to study the general developmental milestones in babies who had treatment for ROP and attending the hospital for follow up.

Retinopathy of Prematurity Eradication - Save Our Sight (ROPE-SOS)

India has the highest number of premature births in the world. Currently, screening for Retinopathy of Prematurity (ROP) and its management is happening sporadically in the country. It is disheartening to see increasing number of infants with stage 4 and 5 ROP being brought to Aravind Eye Hospital at which point, it is beyond the scope of restoring the vision. With a

generous grant from Mr. Subroto Bagchi and his wife, Ms. Susmita Bagchi, Aravind - Coimbatore has begun a project to screen for ROP in the under served and rural areas by a trained technician (non-ophthalmologist) using a retinal camera. Babies with this blinding disease are identified real - time by transmitting retinal images to a remote ROP expert (via broadband internet) and those who require treatment are referred immediately to the base hospital. If the child is too sick to travel, prompt on site laser treatment would be done by the ROP expert visiting the NICU with portable diode laser within 3 days. The two-year project includes various stakeholders including paediatricians, gynaecologists, NICUs, physicians and retina specialists.

Universal Eye care and Comprehensive Eye Care for a Million people: Using Technology and Vision Centres as the foundation - Building a Scalable Model in Tamil Nadu, India

The SightSavers supported project is being implemented in 15 Vision Centres covering a population of 1 million within the service area of Aravind - Madurai. The objective is to design, develop and demonstrate how Vision Centres can become an essential foundation for ensuring universal coverage and the reach of which will significantly enhance the compliance to treatment and follow-up for speciality eye diseases such as diabetic retinopathy, glaucoma, children's eye ailments, corneal illnesses, low vision and visual impairment.

USAID ROP project team with Dr. P. Vijayalakshmi and Dr. Nagamani Beligere





Diabetic retinopathy camp as part of Universal Eye Care project

As part of the project, a unique ID was created for all patients visiting Vision Centres and an exclusive IT based registry was developed for patients with diabetes and glaucoma. A standard operating procedure is being adopted to track patients for compliance to treatment and follow up. Close to 50 awareness creation programmes were conducted through which 5,095 people were oriented about eye diseases and importance of early detection and regular treatment. Close to 30 diabetes and diabetic retinopathy screening camps were conducted.

More than 30 glaucoma follow up camps were arranged and patients were motivated to bring their family members as well for glaucoma screening. 930 school teachers were trained to do preliminary eye screening for students. The teachers screened around 38,200 students and around 2,000 students were found to have eye defects. 1,103 pairs of spectacles were

issued to students having refractive error. Trained eye health field workers in close co-ordination with local volunteers in the community identified and referred children with low vision and other eye disorders to Vision Centres. These field workers were also instrumental in promoting eye donation. Special camps to identify refractive errors were also arranged.

XOVA Project

Subsequent to receiving the Excellence in Ophthalmology Vision Award (XOVA) in 2012, this project was initiated to improve teacher training model in India to identify ocular defects among school children and involved screening of children in 400 schools from six districts in and around Pondicherry in two years. In the last year, 3,576 teachers from 127 schools were trained and 159,809 children were screened by these teachers, of whom 16,721 were identified with problems. After the final examination by the medical team, 6,921 children were confirmed with vision problems. Among them, 4,223 had refractive error and free spectacles were provided to 3,798 children.

Health Services Research

Research division at LAICO aims at building the research capacity by facilitating training and consultations on research designs and research methodology. Members of LAICO faculty are involved in various research projects in the realm of health services research. This contributes to LAICO's goal to strengthen health services research in order to enhance eye care service delivery globally. A weekly journal club is being organised for LAICO staff and managers of the hospitals to nurture research interest among the staff.

Participants to Research Methodology workshop



Other Major Events

Wellcome Trust - Sustaining Health Dialogue meeting

Mr. R.D. Thulasiraj attended Wellcome Trust - Sustaining Health Dialogue meeting on April 1 at London. As a follow up to this, he also participated in a workshop in July to explore how knowledge and technology can support the sustaining health agenda which recognises the importance of social and environmental determinants of health.

Stakeholders Meeting of Magrabi ICO Cameroon Eye Institute

Mr. R.D. Thulasiraj represented LAICO as a stakeholder at a meeting held in London on May 27 to discuss the development of Magrabi ICO Cameroon Eye Institute. LAICO will be carrying out training, strategic planning and putting place a lot of the systems for effective operations.

Health Economics: Coming of Age

Mr. Sanil Joseph attended a one day conference - *Health economics: Coming of age* organised at the London School of Hygiene and Tropical Medicine, London on June 12.

Ross' India Business Conference

Ms. Dhivya Ramasamy spoke at a panel discussion on *Health care in India* at India Business Conference organised by Stephen M Ross Business School, University of Michigan, Ann Arbor, USA on September 26.

Camden Coalition of Health Care Providers

Camden Coalition of Health Care Providers at Philadelphia, USA is doing very innovative work with the very poor in the Camden County to keep them

Ms. Dhivya Ramasamy at Ross' India Business Conference, University of Michigan



Mr. R.D. Thulasiraj and Mr. Ganesh Babu at DR and ROP Expert Group Meeting

healthy and away from hospital. A large team from Camden Coalition had visited Aravind earlier to learn from its cost effective processes. Mr. R.D. Thulasiraj visited them from October 14 - 28, to understand their work better and learn from it. While there, he gave a talk to the students of the Cooper Medical School of Rowan University.

VISION 2020 Primary Eye Care Symposium

Mr. R.D. Thulasiraj spoke on the role of primary eye care services at the symposium organised by Vision 2020 - Sri Lanka at Colombo, Sri Lanka on December 19 - 20.

VISION 2015 Conclave

Dr. Dipankar Datta and Mr. Mohammed Gowth delivered guest lectures on the *Role of Vision Centres in ensuring primary eye care* at VISION 2015 Conclave organised by Polio Foundation, Ahmedabad from January 2 - 3.

Presentation on Aravind Model at IIM - B

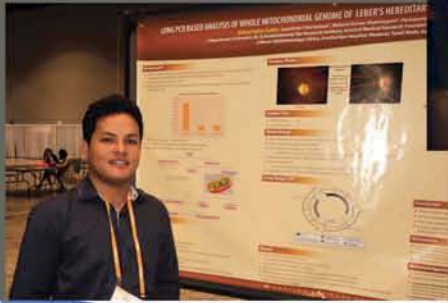
Ms. K.M. Sasipriya was at Indian Institute of Management - Bangalore to present the Aravind model at the Public Policy Programme for IAS and allied officers on February 7.

DR and ROP Expert Group Meeting

Mr. R.D. Thulasiraj and Mr. Ganesh Babu participated in the first meeting of the expert group for monitoring and evaluation of diabetic retinopathy and Retinopathy of Prematurity programmes organised by Indian Institute of Public Health, Hyderabad on March 5.

Frugal Innovation Forum 2015

Mr. R.D. Thulasiraj shared his thoughts on scaling up frugal solutions in health at the Frugal Innovation Forum 2015 hosted by BRAC Social Innovation Lab during March 20 - 24 at Savar, Bangladesh.





Modern research needs continuous up gradation of equipment and facilities. Research activities at AMRF were strengthened with various major infrastructure developments. Triple Mass spectrometer facility was improved with the addition of several supporting equipment. This will go a long way especially in biomarker and protein profiling as well as quantitative proteomics of eye diseases. Another facility that has been augmented is the confocal laser scanning microscopy facility. Grants were received from private donors that would greatly help in tackling some of the long term research problems especially in the field of diabetic retinopathy.



Research

Proteomics of Ocular Diseases

The primary focus lies in understanding the pathology of eye diseases at the protein level. This understanding is important to develop methods or markers that will allow early diagnosis as well as in improving treatment especially for fungal keratitis, diabetic retinopathy and glaucoma. High-throughput proteomics approaches were employed to carry out large-scale comprehensive studies of specific proteomes that include information on protein abundances, their variations and modifications, their interacting partners and the networks they are involved in. A state-of-the-art Mass Spectrometry facility has been established that allows profiling complex proteomes in the discovery phase studies when the proteins that have the potential to be used as biomarkers are shortlisted. These proteins will be validated across a large number of samples during the validation phase. Research is further complemented by studies at the genome and transcriptome level. A cell culture facility also has been established where cell lines are used as a model system to test hypothesis.

Molecular Genetics

The department is currently working on molecular genetics of various eye diseases. Prevalence of these eye diseases (cataract, diabetic retinopathy, glaucoma



Research scholars at work at the Proteomics Department

and retinal dystrophies) is high in Indian population. The department has given priority to study the mitochondrial genes involvement in the pathogenesis of diabetic retinopathy and Leber's Hereditary Optic Neuropathy (LHON). It has also taken steps to determine the levels of cytokines in the aqueous humour of primary angle closure glaucoma patients. In addition, the role of recently reported candidate genes of primary open angle glaucoma is being studied to understand the pathogenesis.

The department successfully demonstrated the usefulness of its new strategy for rapid and cost-effective genetic testing of retinoblastoma. Next

Sample preparation for SNP genotyping at molecular genetics laboratory





Observation of Rhodamine stained colonies of varying sizes formed by corneal epithelial cells on 3T3 fibroblast feeder layer

Generation Sequencing analysis of retinoblastoma was extended to include both the single nucleotide variants and copy number variants.

Stem Cell Biology

The main focus of research is on limbal epithelial stem cells that help in maintaining the corneal epithelial homeostasis. The department has earlier established (i) a two parameter analysis (high p63 expression in cells with high nucleo-cytoplasmic ratio) as a specific method for their identification and quantification (since there are no single specific marker), (ii) the protocol for *ex-vivo* expansion of autologous limbal/buccal epithelial stem cells and (iii) transplantation of such stem cell rich bioengineered epithelium in patients with limbal stem cell deficiency with 25% success. The current focus is to understand the components of the limbal stromal niche and to assess the damage to limbal stroma as a result of the injury, which will play an important role in developing better treatment modalities to patients with limbal stem cell deficiency. In addition, the molecular mechanisms that govern the maintenance of these tissue specific, non-keratinised, adult stem cells are being analysed using an enriched stem cell population.

Ocular Pharmacology

The main focus of the department is to understand the molecular mechanism(s) involved in the disease pathogenesis and to identify newer or modified therapeutic drug targets for ocular diseases such as



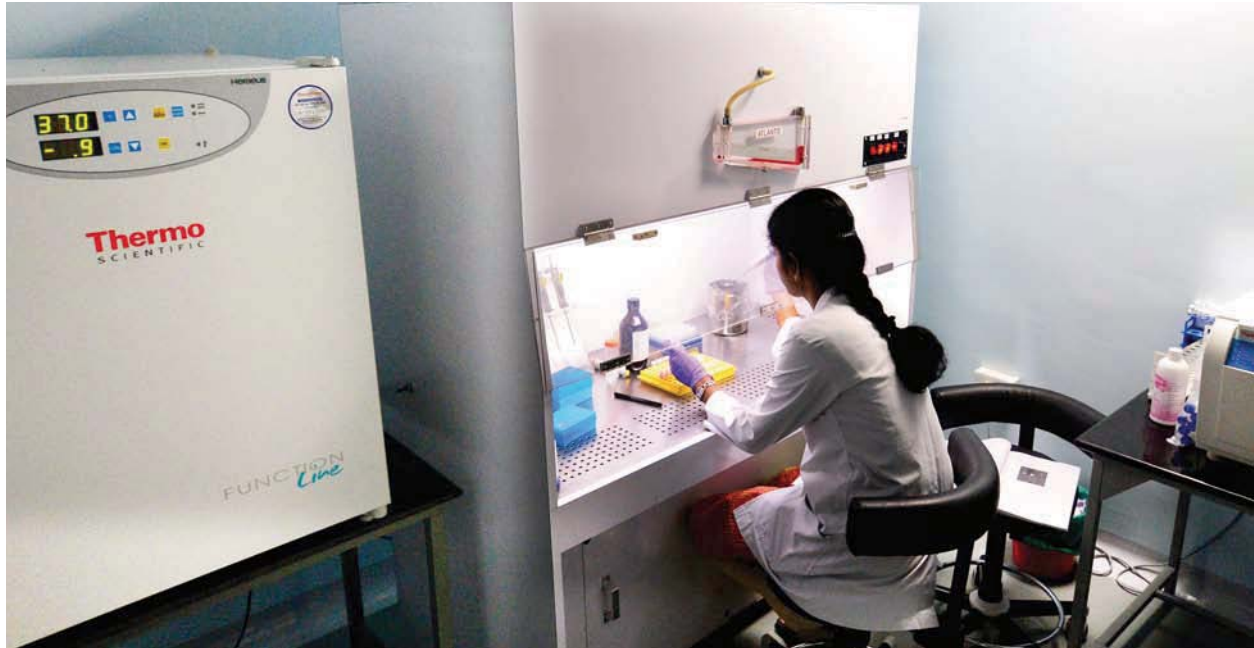
Research Scholar performing apoptosis assay at ocular pharmacology lab

diabetic retinopathy, age-related macular degeneration and glaucoma.

The department is currently engaged in bringing out newer intraocular pressure (IOP) lowering drugs using a newly established *ex-vivo* model system called Human Organ Culture Anterior Segment (HOCAS) system. Unlike the currently available anti-glaucoma drugs, the newly developed class of drugs acts on the cytoskeleton assembly of the target tissue, the trabecular meshwork (TM) which is getting affected during glaucoma. This would be a potential class of drugs for the clinical management of glaucoma with better IOP control.

Bioinformatics

Research activities at Bioinformatics department are directed towards two major areas, i) Structural Bioinformatics. This uses structural bioinformatics approach to the analysis of Single Nucleotide Variants (SNVs) and prediction of its association with retinal dystrophies. This analytical approach will help create a platform to understand the pathogenesis of all other genetic eye diseases that are common in India. ii) Next-generation sequencing (NGS) data analysis: The NGS technologies enable scientists to analyse millions of DNA sequences in a single run. Gigabytes of raw data thus produced need to be further analysed in order to gain biological meaningful results. Tools are developed and applied for the analysis of NGS sequencing data, from processing of raw data and mapping of reads to downstream statistical and bioinformatics analysis of the data.



RNA extraction from infected neutrophils

Ocular Microbiology

The department focuses on the characterisation of ocular pathogens and the host-pathogen interactions in the context of ocular infections. The virulence, persistence and antibiotic resistance mechanisms of clinical ocular isolates are probed using advanced technologies including whole genome sequencing. Intracellular survival of pathogens and the host response to infection are studied using invitro cell culture models, whereas the actual disease pathogenesis is explored using ocular tissue samples exvivo. A recent analysis of the corneal micro RNA expression profile in fungal keratitis gave an insight on the regulatory role of small RNAs in corneal inflammation and wound healing. Ocular cytokine and chemokine profiles are being determined in uveitis patients with a view to identify potential biomarkers and to understand the disease pathogenesis. Since ocular infections remain a major cause of vision loss in our country, advanced therapeutic strategies need to be developed with an understanding of the underlying molecular events and regulatory networks. The research done at the ocular microbiology department aims to address these important aspects of disease by probing the host-pathogen interactions both at the cellular and molecular level.

Ongoing Basic Research

- Mitoscriptome analysis to understand the pathogenesis of diabetic retinopathy using tissue microarray
- Mitochondrial genes involvement in Leber's Hereditary Optic Neuropathy (LHON)
- Establishing the genetic testing centre for retinoblastoma
- Etiology and immunopathogenesis of sub conjunctival and anterior chamber granulomatous uveitis in children of south India
- Microbiological clearance time and sensitivity assay for acanthamoeba keratitis
- Aspergillus flavus study group of India (AFSGI) Epidemiology, pathogenomics, and system biology of A. flavus infections in India - An integrative approach
- CoE - Programme support on Human Mycotic Keratitis
- Core Project: Functional genomics and proteomics of fungal pathogenome and host immune response to fungal infection in human mycotic keratitis
- Project 1: Quantitative proteomics and analysis of disease specific post translational modifications of tear, cornea and sera of keratitis patients
- Project 2: Biology of human ocular fungal pathogens: comparative proteomics of virulent and avirulent Aspergillus and Fusarium



Participants to Workshop on Clinical Proteomics

- Project 3: Functional genomics of a fungal pathogen *Aspergillus fumigatus*
- Role of Aldose Reductase in retinal pigment epithelium - An understanding towards the pathogenesis of diabetic retinopathy
- Evaluating the role of macular carotenoids in the accumulation of A2E, a fluorophore in the pathogenesis of age-related macular degeneration
- Quantitative proteomics of host pathogen interaction in human *Aspergillus* keratitis
- A genetic component to the INDEYE study of cataract and age related macular degeneration in India
- Molecular genetics of retinal dystrophies and congenital glaucoma
- Human organ culture anterior segment for trabecular outflow studies
- Proteomics and peptidomics of human infectious diseases and biomarker discovery
- Predictive biomarkers for diabetic retinopathy among diabetics and stage specific biomarkers for NPDR and PDR

Major Workshops Conducted

Workshop on Clinical Proteomics: Methods and Applications

Conducted on October 10 - 11 as part of October Summit, this workshop aimed at introducing young research students to the state-of-the-art proteomics technologies and its applications, primarily in the area of clinical research. Dr. Mohammad Aslam, Advisor, Department of Biotechnology, Government of India inaugurated the workshop sponsored by the Department of Biotechnology, Government of India, Thermo Fisher Scientific India and Ponmani Glasschem Agencies, Madurai. Fifteen participants from different Universities and institutes, took part in this workshop. The participants were provided hands-on training in data analysis and interpretation of high-throughput proteomics data.



Dr. A.P.J. Abdul Kalam visits Aravind

Important Visitors

Dr. A.P.J. Abdul Kalam, Former President of India visited Aravind on May 31 to motivate the research team to pursue quality research and to apply modern research findings to help people with vision problems. He delivered a talk on the topic, *Bench to Bedside: Taking research to clinical practice*.

Mr. Subroto Bagchi, Founder Chairman, Mindtree Ltd, Bangalore and his wife, Ms. Susmita Bagchi, Director, White Swan Foundation, Bangalore visited AMRF on August 1 and held discussions

with Prof.K.Dharmalingam, Director, Prof. VR.Muthukkaruppan, Advisor, Dr.N.V.Prajna, Chief - Medical Education and AMRF faculty on various research activities carried out at the institute. The guests offered a grant to support a research project on diabetic retinopathy.

Ph.D. Awarded

K. Renugadevi was awarded Ph.D in Biomedical Sciences by Madurai Kamaraj University for her study, "Molecular Genetics and Functional Analysis of Albinism Patients in India". She carried out her study under the guidance of Dr. P. Sundaresan.

R.Sivaganesa Karthikeyan was awarded Ph.D in Biomedical Sciences by Madurai Kamaraj University for his study, characterisation of the Immunopathogenic Mechanism In Human Mycotic Keratitis" He carried out his study under the guidance of Dr. C. Gowripriya.

Prof. VR. Muthukkaruppan Endowment Award - 2014

The inaugural Prof. VR. Muthukkaruppan Endowment Award was presented to Mr. Mohammed Razeeth, Project Fellow, Proteomics Department for his outstanding research on *Generating genome wide deletions*

Research team interacting with Mr. and Mrs. Bagchi





Prof. VR. Muthukkaruppan Endowment Award being presented to Mr. Mohammed Razeeth

in *A.flavus* - To understand *A.flavus* pathogenic mechanism. The award is given based on the scientific merit of abstracts submitted by the research scholars of Aravind Medical Research Foundation.

Newly Added Research Facilities

Mass Spectrometry

A Core Mass Spectrometry facility with state-of-the-art high throughput Mass Spectrometers was established primarily to support proteomics research on different eye diseases. This facility has been funded by DBT Government of India for the programme on fungal keratitis. Human resource development is another major activity of this facility.

Orbitrap Velos Pro™ hybrid ion trap-orbitrap mass spectrometer



TSQ Quantum Ultra™ triple quadrupole mass spectrometer for high-throughput and accurate quantitation of proteins

OrbitrapVelosPro™Hybrid Ion Trap-Orbitrap Mass Spectrometer

OrbitrapVelosPro™ combines a Thermo Scientific™ Orbitrap™ mass analyser and Velos Pro ion trap technology to deliver high resolution, speed, sensitivity, and flexibility.

TSQ Quantum Ultra™ Triple Quadrupole Mass Spectrometer

This allows multiple reaction monitoring, the principal and powerful method for quantitative measurement of target proteins. This platform has been funded by a generous grant from Subroto Bagchi.

Data Analysis

A dedicated computational facility for the analysis of Orbitrap MS generated high throughput data is also available along with additional support from AMRF Biocomputing Centre.

Confocal Laser Scanning Microscopy Facility (LEICA TCS SP8)

Leica TCS SP8 confocal laser scanning microscope is an inverted microscope designed for optical imaging with optimal photon efficiency and high speed and facilitates optical sectioning.

Ongoing Clinical Research

Aravind Eye Hospitals

Retina

- Role of intravenous Methyl Prednisolone in closure of post traumatic full thickness macular hole
- Inverted ILM tucking for optic disc pit with maculopathy
- Micropulse laser in diabetic macular edema
- To study the structure and blood flow in chorioretinal complex of human using optical coherence angiography
- A 12 month, phase III, randomised, double-masked, multicentre, active-controlled study to evaluate the efficacy and safety of two individualised regimens of 0.5 mg ranibizumab Vs. verteporfin PDT in patients with visual impairment due to choroidal neovascularisation secondary to pathologic myopia (Brilliance)
- Luminous: Study to observe the effectiveness and safety of Lucentis through individualised patient treatment and associated outcomes
- A prospective, comparative, assessor blind, randomised, multicentric phase III study to compare the safety and efficacy of ranibizumab of intas biopharmaceuticals ltd. in comparison with lucentis of novartis in patients of wet AMD (age related macular degeneration)

IOL and Cataract

- The natural history of IOL in eyes with exfoliation syndrome (APEX IOL study)
- Aravind pseudoexfoliation IOL study-genetic analysis
- The role of homocysteine in Aravind pseudoexfoliation IOL (APEX) study
- Barriers to acceptance of cataract surgery
- A prospective study to analyse the surgically induced astigmatism after sutureless MSICS with 2 different sized incisions
- To study the effect of morphological characteristics of posterior polar cataract on the surgical and visual outcome following phacoemulsification.
- Evaluation of the visual performance and rotational stability of i-Sert 351 (Hoya preloaded Toric) lenses.

- A prospective, non-randomised, single arm, open label study to evaluate the safety and efficacy of Polymethyl Methacrylate Intraocular Lens (PMMA IOL) for the treatment of cataract
- Comparison of induced coma due to decentration of two aspheric IOLs

Cornea

- Mycotic Ulcer Treatment Trial (MUTT)
- Parasitic Ulcer Treatment Trial (PUTT)
- Observation pilot study of the corneal microstructural changes assessed by IVCN after hypotonic collagen crosslinking for thin corneas.
- Comparison of corneal thickness using ultrasonic pachymetry, pentacam and confocal microscopy.
- Corneal ulcer prevention through health education
- Evaluation of the efficacy of 2% cyclosporine in preventing graft rejection

Glaucoma

- A prospective, randomised, controlled clinical trial comparing topical medical therapy with Selective Laser Trabeculoplasty (SLT) as initial treatment for open angle glaucoma in south Indian population
- Genetic screening in a large family with primary open angle glaucoma
- Indian family angle closure evaluation (IFACE) study-Part II
- International Pilot Survey of Childhood Glaucoma (IPSOCCG)
- Quality of life assessment in one eyed glaucoma patients with Indian vision function questionnaire
- Prospective randomised comparative study of efficacy and safety of sub conjunctival injectable mmc vs mmc soaked sponges in trabeculectomy in high risk glaucoma patients
- The effect of postural changes on intraocular pressure in primary open angle glaucoma and primary angle closure glaucoma using Perkins tonometer
- Prospective case study of trabecular - iris angle status on AS OCT post cataract surgery in phacomorphic glaucoma
- Retinal nerve fiber layer changes after an acute episode of phacomorphic angle closure
- Compare the sensitivity and specificity of Dell tablet

- fields with the standard white on white perimetry done on Humphrey's Field Analyser (HFA)
- A randomised controlled trial comparing intraocular pressure changes after phacoemulsification and manual small incision cataract surgery
- Trabeculectomy with Ologen
- Central macular thickness and its relation to axial length and intraocular pressure after phacotrabeculectomy
- A cross sectional study on the factors associated with optic disc haemorrhage in patients with primary glaucoma in a tertiary care centre in south India
- A prospective, randomised comparative study to determine the safety and efficacy of 2 fixed 10-0 polyglactin suture and one fixed nylon suture Vs 2 fixed 10 - 0 nylon suture with one releasable nylon suture for triangular sclera flap in phacotrabeculectomy
- Effect of VEGF levels in tension tissue on the outcome of glaucoma surgery
- SIX6 gene involvement in POAG

Uvea

- Etiology and immunopathogenesis of presumed trematode induced uveitis in south India.
- Evaluating whether ocular compartment could serve as a potential reservoir for HIV-1 during inflammatory conditions in HIV-1 positive individuals - Pilot study.
- Molecular diagnosis and ocular imaging of West Nile virus retinitis and neuroretinitis
- Periocular corticosteroid therapy for patients with uveitis trial (PST Trial).
- SAKURA study - Safety assessment of masked uveitis treatment
- Assessment of visual outcome of irido-lenticular abscess

Orbit, Oculoplasty and Ocular Oncology

- Establishing the genetic testing centre for childhood ocular cancer (retinoblastoma) in Aravind Medical Research Foundation

- Genetic and transcript analysis of RBI in south Indian RB patients - ICMR
- A prospective non-randomised single arm, open label study to evaluate the safety and efficacy of lacrimal silicone intubation for the management of Epiphora
- Evaluation of Auro-tube in conjunctiva dacryocystorhinostomy (CDcr)
- A simple smartphone based method for early detection of retinoblastoma - A pilot study

Operations research

- Effectiveness of telemedicine in identifying diabetic retinopathy cases among patients visiting diabetes clinics compared with conventional referral
- Assessment of factors influencing decision making for eye donation among potential corneal donors

Clinical Trials

Aurolab

- Prospective, non-randomised, single arm, open label study to evaluate the safety and efficacy of lacrimal silicone intubation (Aurolac) using the Needle manufactured with Ss316 Lvm (Light Vaccum Melted) for the management of epiphora
- Prospective clinical investigation of Conjunctivo Dacryocystorhinostomy (CDcr) with Aurotube
- A prospective, open label, observational study to evaluate the safety and surgical performance of silicone oil coated 6/0 pga needle in ophthalmic surgeries
- A prospective, non-randomised, single arm, open label study to evaluate the safety and efficacy of Polymethyl Methacrylate Intraocular Lens (PMMA intraocular lenses) for the treatment of cataract





Aurolab crossed 23 years of service in manufacturing wide range of unique ophthalmic consumables that are relevant to people with vision impairment. Recently, Aurolab has set in motion efforts to increase its building space by 20,000 sqft to meet the growing needs. This new facility in the campus will accommodate state-of-the-art finished goods department and US FDA compliant manufacturing area. Aurolab was able to generate 164,250 KWH of clean energy from the solar plant established in the previous year, thereby reducing the carbon foot print significantly. It has launched many new products manufactured on efficient production lines with strict quality assurance measures that comply with US FDA, EU GMP, WHO GMP norms.

Manufacturing Ophthalmic Supplies



New Products

HAWK I: Aurolab Slit Lamps

Aurolab has introduced its range of slit lamps under the brand name “Hawk - I”. Hawk I fulfils the long unmet need in the market for a good optical quality product available for less than one lakh rupees. It is a compact illumination system with fluid mechanical movement which offers excellent optical functions needed for eye care professionals. It comes in both top and bottom illumination with 3 - step and 5 - step magnification.

Aurochart 22

Aurolab has introduced a wide screen 22” HD LCD display version of its Aurochart. This product has menu driven functions making it attractive, extremely easy to use as well as to train. It comes with various preloaded videos and images that can be used for patient counselling. The testing distance can be customised at the user end between 6 ft to 25 ft in 0.25 ft increment. USB port provided increases the versatility of the product.

Lid Clean

Aurolab has launched pre lathered foam based ready-to-use eye lid cleanser. Its triple anti microbial formulation ensures effective protection against infections. It contains no synthetic detergents making it irritation - free and safe for application on eye. It can be prescribed for all lid infections and especially is a boon for patients with blepharitis.

Aurovue EV Preloaded

Aurolab’s pre loaded hydrophobic acrylic aspheric IOL has been re-launched in the market with a new and improved patented design. This in-house innovative design ensures delivery of the IOL as desired by the surgeons. This design significantly reduces handling of the IOL either by the OT staff or surgeons.

Auroflex Aspheric

Auroflex brand of hydrophilic acrylic IOLs, which has been the most successful and popular brand of Aurolab’s foldable IOLs has now been enhanced with a zero aberration aspheric optic. This is a value addition provided to customers at no additional cost. Scores of patients stand to benefit from this with improved quality of vision.

Marketing Activities

Aurolab has widened its international market by appointing nine new international distributors and added 60 new international customers. It has initiated direct supply to major eye hospitals in Pakistan, Nepal, Sudan, Yemen, Nigeria and a few other countries where Aurolab does not have any dealer network. Aurolab has won Ministry of Health tenders in almost 10 countries.

Second batch of Aurolab sales training programme - ASTRA was conducted for a period of 8 days from June 2 - 10 with 17 participants including field staff.

Aurolab's India Dealers Meet and Annual Sales Meet were conducted in June. Twenty-four dealers participated in the dealers meet. The annual sales meet brought together all 60 personnel involved in sales and marketing across India.

Aurolab sponsored a live surgery session at the annual conference of Tamil Nadu Ophthalmic Association held at Coimbatore from August 8 - 10. Surgeries were performed by Dr. Ganesh V. Raman, Aravind - Coimbatore (Auroflex Toric IOL) and Dr. Tanpreet Singh, Aravind - Madurai (Aurovue Aspheric).

Aurolab's Continuing Medical Education (ACME)

Toric IOL is a relatively new concept in India and its penetration is much less compared to western markets. However, Toric IOLs are of immense benefit to patients and give predictable outcomes. There is a learning curve involved in adding Toric IOLs to a surgeon's practice. To aid in this, Aurolab started ACME and the first CME on Auroflex Toric was held at Erode, on November 23

which was attended by 30 surgeons. Second CME was held at Bhubaneswar, Orissa on December 16 and was attended by 20 surgeons.

Aurolab being a multi-speciality organisation with over 100 products in its range, it is a challenge to train and retrain its field force. It adopted Aravind's Aurosiksha platform to conduct a monthly online test (MOTI) for its sales and marketing staff with a view to keep them updated about the products and applications. A monthly internal newsletter "connexions" was also started to bring together the staff across the country and provide a platform for sharing and learning.

Sangamam, a one day workshop on clean room etiquettes, water system, sterilisation and handling of operation theatre (OT) products was conducted for OT staff of Aravind Eye Hospital. Around 170 staff members from all the Aravind centres were covered in 7 batches under this programme. As most of the products manufactured by Aurolab are surgical products, this programme was mutually beneficial to the nurses, hospital and Aurolab.

Regulatory Affairs

The ISO and CE Surveillance audits were carried out successfully. Preloaded Hydrophobic IOL, Glaucoma Shunt (AADI) and Aurosleek are awaiting CE certification. Aurolab got CE and USFDA approval for PGA Absorbable suture.

Participants to India Dealers Meet





Participants of Sangamam workshop in Aurolab

Registration certificate was received for 40 products in 9 countries. GMP audit has been successfully done by Ministry of Health of South Korea and Yemen. Auroflex EV has been approved by Ministry of Food and Drug Safety, South Korea.

Prominent Trade shows attended

Apart from the various regional and speciality conferences, following are the major conferences attended by Aurolab.

Mr. Vishnu Prasad and Mr. Alexander represented Aurolab at the Congress of the American Society of Cataract and Refractive Surgeons conference held at Boston, USA during April 25 - 29.

Mr. Vishnu Prasad, Mr. Venkatesa Kannan, Mr. Ramnath and Mr. Alexander represented Aurolab at the Annual Conference of European Society of Cataract and Refractive Surgeons conference held at London, UK during September 13 - 17.

Aurolab stall at ESCRS conference, London, UK



Mr. R.D. Sriram, Mr. Vishnu Prasad and Mr. Alexander represented Aurolab at the American Academy of Ophthalmology conference held at Chicago, USA during October 18 - 21.

Aurolab participated in the Annual Conference of the Asia Pacific Academy of Cataract and Refractive Surgeons conference held at Jaipur, India during November 13 - 16.

Aurolab participated in the 73rd All India Ophthalmological Conference 2015 held at Agra from February 5 - 8.

Products such as Aurovue EV preloaded IOL, Aurochart 22 were launched at the conference. Aurolab organised Aravind Alumni meet at India Habitat Centre on February 7 and was attended by around 85 alumni across India. Aurolab also won AIOS Certificate of Merit for its stall.

Aurolab team at APACRS conference, Jaipur





Aurolab stall at TNOA conference



Dr. R. Ramakrishnan addressing the staff at Aurolab Day celebration

HR Activities

Continuous Technical Education Programme was arranged for the production staff on October 12. The topics covered included packing system, sterilisation, microbiology, GMP and clean room and water recycling.

As a way of expressing its social responsibility, Aurolab arranged *Angaadi*, a unique charity fest on October 17 in which staff members participated whole heartedly. The proceeds of the sales went to the Jammu and Kashmir Flood Relief Fund.

On the recreation front, a playground was inaugurated in Aurolab farm.

A training programme on preventive maintenance and its advantages was organised for all the technicians on June 14 - 18. The participants were introduced to various types of maintenance systems, definition of preventive maintenance and importance of cleaning, lubrication, inspection and calibration.

Various motivational lectures were arranged on different occasions to keep up the staff morale and spirit. Health care awareness talks were also conducted roping in eminent specialists in the field.

Graduation day was organised for the trainees of the production unit on July 6.

Production staff who were not fortunate to continue their studies after school due to economic conditions were encouraged to pursue graduation. Aurolab facilitated the process and the first batch consisting of 18 staff members successfully completed their graduation.

Education funds were allotted to children of staff members to make sure that they receive quality education. Close to forty employees have benefitted.

Festivals, throughout the year were celebrated with all their glory which gave staff an opportunity to mingle with each other and share the joy of season.

Medical insurance benefit has been offered to employees along with family members. 118 employees have benefitted.

Mrs. Krishnammal Jagannathan with the Aurolab staff



Staff on an excursion to Courtrallam



CENTRAL FUNCTIONS

HUMAN RESOURCE DEVELOPMENT ACTIVITIES

A retreat was conducted on January 18 - 19 for Nursing Superintendents, HR Managers and staff of Personnel Departments across all Aravind centres. Ms. Cindy Harrison, Vice-President/Talent and Workforce Strategies at Henry Ford West Bloomfield Hospital, USA facilitated the retreat. HR activities of the last year and retention rate were analysed in detail. HR calendar and theme for the year 2015 was finalised. The theme finalised for Aravind Eye Care System was *to enhance effective communication for quality patient care*. HR Theme for the year 2015 was decided as *year for Leadership Development*.

Towards Ensuring Professional Development

Physician Engagement Programme

Aravind is among the very few organisations in the field of health care to initiate physician engagement programme. The main aim of this programme is to make physicians develop a better involvement in their work which will ultimately result in better patient care. The programme is designed in such a way as to help develop a sense of connectivity among the physicians. Various programmes were implemented towards this end. Mr. Larry Hulbert, eminent educational and

organisational consultant was roped in to mentor senior physicians by facilitating various group discussions. *Pragathi* - a get-together of senior doctors was arranged on January 12 to reflect on the different issues they face in work. Grooming sessions were arranged on a periodic basis to help in personality development. A club named Wanderers was formed that organises trekking and photography sessions which help physicians explore the outer world and develop a good rapport amongst themselves. Motivational talks were also arranged to boost their spirit.

Training Programme for Drivers

Engineers from Force Motors conducted a training on the importance of proper maintenance of vehicles for the drivers of Aravind - Madurai on April 23.

Talk on Typography

Andy Jones, volunteer from USA specialising in media arts interacted with staff of Aravind Communications department on various ideas related to designing, style, font selection for both print and electronic media.

Talk on Managing Technical Risks in Hospital Equipment Maintenance

Mr. C. R. Pandian, CEO and Founder, Quality Improvement Consultants handled the session for all managers, LAICO faculty, staff from Instruments Maintenance Department, AMRF and Aurolab.

Dr. Krishnadas addressing the participants at HR Retreat





Participants at Pragathi

Continuing Medical/Professional Education (CME/CPE) Programmes for Internal Training

There has been a constant emphasis within the organisation to continually improve specific clinical skills along with soft skills in order to provide the best experience for the patients. CME programmes have proved to be a strong motivation as well as a training ground for those at task. It helps learn the best techniques and unlearn the bad ones.

OPTIMEET-CPE for Optical Shop Staff

Optimeet was arranged on September 14 at Aravind - Madurai for the staff of Aravind optical shops across all centres. Participants discussed important topics relevant to optical dispensing.

CPE for Staff of Instruments Maintenance Department

The two day programme was conducted for the staff of Instruments Maintenance department across the Aravind centres at Aravind Eye Hospital, Pondicherry during November 1 - 2.

CME for Staff of Vision Centres

A CME for staff of Vision Centres, Community Centres and Surgical Centres was organised on November 30 at Aravind - Tirunelveli. The CME was designed to provide up to date information in the field of ophthalmology. A similar CME was arranged for the staff of Vision Centres at Aravind - Madurai on March 7 - 8.

Participants at the CPE for Optical staff





CME for staff of Vision Centres

CPE for Aravind Communications and Visual Arts Staff

Aravind Communications team consisting of close to thirty members from DTP, Audiovisual department and news correspondents across the Aravind Eye Care System had their annual training programme at LAICO during December 19 - 21. Sessions consisted of motivational classes, soft skill as well as professional training relevant to each department. Eminent resource persons were roped in to give hands-on training to the participants.

CPE for Staff of Stores Department

The workshop held on January 9 at Aravind - Madurai brought together staff from various centres to come up with ideas that would ensure the smooth functioning of the Stores department.

CPE for Accounting Staff

The accounts team successfully conducted the first Accounts CPE on March 14 with the objective of standardising the accounting systems across all ten hospitals and to ensure error free, accurate and timely reports to management. IT provided exposure on the

At the CPE for staff of Stores Department





Participants to the CPE for accounting staff

new initiatives planned for the fiscal year 2015-16. It was a nice opportunity for the accounting staff to meet in person and strengthen the relationship between the teams.

Skill Development Programme

Skill development programme in collaboration with Essilor India Pvt Ltd; was organised for the staff of optical sales, refraction and counselling department as well as optical technicians and supervisors on February 14 at Aravind - Coimbatore. Topics covered included effectiveness in communication and importance of team work.

Employee Welfare Measures

As a first of its kind initiative, a special family meet was arranged for the technicians of Vision Centres at Aravind - Madurai and Pondicherry on December 20 and 28 respectively. Given that most of the Vision Centre technicians lack the necessary family support in performing their work, the main purpose of the programme was to make the family members understand the great service their relatives or spouses are rendering to the society and the significance of their work. The participants were taken on a tour of hospital facilities, Nithyatha and Aurolab.

Motivational talks are arranged on a regular basis across all centres for different cadres of staff to boost their morale and keep their spirits high. Eminent resource persons are invited to handle such sessions.

As a way of motivating the staff children, those who cleared tenth and plus two public examinations were felicitated at a specially organised meeting. Gifts were distributed to the children for their outstanding performance. Educational funds were distributed to the children of sanitary staff.

Child care centre within the hospital are a real boon to the working mothers at Aravind. The centre organised summer camp and other entertainment as well as informative activities for the children.

Staff children being felicitated





Valedictory function of summer camp for children

Melody Friday was organised every month that gave a platform for the staff members to come up with their talents in music and singing. Excursion programmes were arranged for staff belonging to different cadres.

Special celebrations were arranged on the occasion of major festivals and anniversary days of the hospitals that brought together the staff on a common platform.

Fire safety awareness programme was held at different Aravind centres that demonstrated the use of fire extinguisher and how to manage oneself in case of a fire emergency.

Spoken Hindi classes were organised for the staff of Aravind. The one-month course provided insights into the basics of the language. Certificates from Hindi Prachar Sabha were distributed to the staff who passed the Viva Voce.

Ms. Susy Stewart, an eminent Yoga teacher and disciple of BKS Iyengar from San Francisco offered a short course in yoga for Aravind staff and employees at Madurai during January 5 - 9.

A Market Place for Good

The spirit of service at Aravind continues to be fostered not only by the day-to-day work of serving all those in need of eye care but also reaching out to people elsewhere suffering from natural calamities. In September of 2014, the Kashmir region experienced disastrous floods that destroyed property and lives.

The staff of Aravind swiftly stepped into action. They collectively organised an event called “Angaadi” which was a platform for Aravind staff to recycle household items, new and old, that would be of value to other staff. Additional revenues were made from sale of food items cooked by the staff, as well as certain fun games. The proceeds of this one-day marketplace was matched by the organisation and a sizeable donation was sent to support the relief flood work in Jammu and Kashmir. In addition to generating substantial funds, the event also reinforced the values of giving and sharing - both core aspects of Aravind’s work.

Angaadi at Aravind - Madurai



INFORMATION TECHNOLOGY AND SYSTEMS

The major focus of the IT department during the last year was towards enhancing the existing solutions and implementing new modules in all Aravind centres so as to ensure that all the hospitals in the network follow similar system. Complete IT solutions were implemented in the centres opened during the year.

Moving towards Paperless System

The team added new modules to the Electronic Medical System (EMR), moving closer towards a completely paperless system. These include modules for Retina and Glaucoma outpatient departments, patient flow management and cataract surgery, laser procedures and post-operative rounds.

The Outpatient module was implemented in the City Centre at Pondicherry. The new City Centre in Coimbatore became Aravind's first paperless centre with both the Outpatients module and the Surgical modules rolled out from the inaugural day. EMR is currently running in four community eye clinics and one surgical centre. Plans are underway to implement EMR in all secondary centres by the end of this year.

A module was developed to ensure accuracy of the inpatient data captured at the campsite and also to complete the admission process at the campsite itself to avoid unnecessary waiting once the patients reach the base hospital. It is currently practised in specific camps in Madurai and Pondicherry which will be extended to other hospitals in the coming years.

Barcode Scanning for IOLs

To keep track on the number of intraocular lens used, and to ensure that each patient gets the correct implant. It is implemented in Madurai, Theni, Tirunelveli, Pondicherry, Coimbatore, Salem and Tuticorin.

Corporate Accounts Management Module

To keep track of complete cycle of activities relating to claims from the corporates and third parties. It is implemented in all the Aravind centres.

Community Outreach Management System

Implemented at Aravind Madurai, Coimbatore, Tirunelveli, Pondicherry, Theni and Salem, this ensures foolproof management of the large volume of outreach data.

Global Hospital Performance Monitoring System

Hospitals participating in LAICO's capacity building programme are now able to easily share performance data online. This helps LAICO provide appropriate inputs to take them through the right direction. The system allows hospitals to track their progress against the targets set and always benchmarks their performance against other hospitals.

Accommodation Management System

A web enabled system was developed to replace an already existed windows based system. The system is developed with more features customised and specific to the organisation's requirements. It is implemented in Madurai and still undergoing changes to improve the utilisation of the system.

Aravind's IT team with the participants to the IHMS Users Workshop, Kathmandu, Nepal



Integrated Human Resource Information System

Attendance report was integrated to the existing system to monitor attendance of employees. Attendance details are centrally downloaded and reports are being sent to respective hospital heads on a regular basis.

Websites Enhanced

www.aravind.org, www.aravindeyefoundation.org and www.v2020eresource.org were revamped with additional features. The department was also involved in developing webpages for Vaigeyee2015 - the annual conference of TamilNadu Ophthalmic Association.

Video Portal

A new feature was added to the intranet which allows easy sharing and viewing of videos.

New Technical Solutions

Upgraded Opticals software was implemented in Pondicherry, Tirunelveli, Salem and Theni. Vision Centre software was implemented in two centres.

IT Support to Other Eye Hospitals

Integrated Hospital Management System (IHMS) software was implemented in the following hospitals.

- Innovation Eye Centre, Kisi, Kenya
- Fitusum Birhan Eye Specialised Centre, Mekelle, Ethiopia
- Kitwe Central Hospital, Kitwe, Zambia
- Presbyterian Eye Services, Bafoussam, Cameroon
- PBMA 's Taty Patil Eye Hospital, Jalgaon
- Shroff 's Eye Hospital, Rampur
- Ispahani Islamia Eye Hospital, Jamalpur, Bangladesh
- Lamahi Eye Hospital, Lamahi, Nepal
- MN Eye Hospital, Tondiarpet, Chennai

Onsite Support

During the last year, the IT team visited 13 hospitals using IHMS for annual maintenance and to demonstrate new features and modules.

Aravind's IT team led an IHMS update workshop at Nepal Netra Jyoti Sang, Kathmandu during November 17 - 18 and shared inputs related to the better utilisation and management of the software.

ARAVIND LIBRARY AND INFORMATION CENTRE

In the fiscal year ending March 2015, the library across the centres welcomed more than 20,000 users and clarified queries of more than 8,350 persons at the reference desks and through the 'Ask a Librarian' service. Huge amount of digital collections were archived from various open access journals and these were shared with users across the Aravind centres.

Elsevier Project Evaluation Meeting

Ms. Pamela C Sieving, Former Biomedical Librarian, NIH Library Bethesda and Ms. Bette Anton, Librarian Emerita, University of California were at the centre from January 5 - 9 to review and analyse the assessment reports of Seva - Elsevier Project (2012 - 2014). Aravind library provided support to the review meeting and gave necessary recommendations for the development of the resource centres.

Support to other Resource Centre

The centre is actively involved in developing resource centres for other eye care centres in India and other countries. Supported by SEVA Foundation, Mr. Kirubanithi, Senior Librarian helped set up resource centres for the Grameen Hospitals at Barisal and Bogra. Necessary suggestions were given to improve the services of resource centre at Netra Niramay Niketan Hospital, Kolkata and its extension centre in Amthala.

Mr. Kirubanithi trains the librarians at Grameen Eye Hospital, Bogra





Prayana - Museum of eye care at Aravind

Exposure Visit

Mr. Kirubanithi observed the National Library of Medicine and National Eye Institute in the USA in May during his visit to receive the Medical Library Association award. At NIH, he spoke on Medical Libraries in India and gave a presentation on *Challenges and opportunities in access to biomedical information resources in developing countries* along with Ms. Pamela C Sieving. He learnt about the latest trends in the field of library management after visiting libraries at John Hopkins School of Public Health, Wilmer Eye Institute, Baltimore and the University of Maryland. He also got an opportunity to visit University of Illinois Centre (UIC) and Ophthalmic Library in Chicago.

Ms. Kumaragurupari attended *Cochrane Colloquium: Evidence-Informed Public Health Opportunities and Challenges at Hyderabad*. Her interview about the impact of Cochrane reviews was published in the Cochrane website.

Prayana

A museum of eye care at Aravind was inaugurated in the library premises by Ms. Pamela C Sieving and Bette Anton on January 9. The museum houses pictures and videos from the early years, manuscripts and ophthalmic equipment and instruments used for diagnostic and treatment purposes since the inception of the organisation.

Ms. Kumaragurupari at the Cochrane Colloquium



At the inauguration of Prayana





Doctor at the base hospital in consultation with a patient in Vision Centre via telemedicine

TELE-OPHTHALMOLOGY NETWORK

Aravind has been deploying telemedicine to

- enable delivery of eye care services to rural areas. This low-cost telemedicine approach in all the Aravind Vision Centres enables the patients to have real-time consultation with the ophthalmologist in the base hospitals. In the last year, this facility was provided to five new Vision Centres
- to collaborate with various diabetes clinics for screening of patients with diabetic retinopathy. A total of 1,111 cases were evaluated during the year - ending March 2015.

Aravind communications team at their annual training programme



- facilitate Grand Rounds and clinical meetings held across all Aravind Eye Hospitals through video conferencing. Around 270 video conferencing sessions consisting of a total of 327 hours were conducted during the year.

BIOSTATISTICS

The department provides vital support to various clinical, epidemiological and health services research projects at Aravind through active involvement right from the study design. The department also takes care of entry, and management of data, statistical analysis and assist in report writing and publishing. The biostatisticians also provide statistical consultation for postgraduates, fellows and research scholars. Additionally, statistical inputs are provided for planning research projects in partner organisations on request.

ARAVIND COMMUNICATIONS

Equipped with full-fledged, in-house desktop publishing, web development and audio visual units, the department takes care of the communication, printing, health education and teaching and training needs of Aravind Eye Care System. Training programmes were arranged for the staff to update them on the latest techniques related to their work.

AWARDS AND RECOGNITIONS

In the last year, Aravind won several national and international awards both at the organisational and individual levels. Such acknowledgements are gratifying and also inspire the staff to work with fresh vigour towards achieving the organisation's mission.

Sankalp Award for Aravind

Sankalp Award, India's leading social enterprise recognition was presented to Aravind on April 10 at Mumbai. Dr. S. Aravind received the award.

Frost and Sullivan Lifetime Achievement Award

Chairman Emeritus Dr. P. Namperumalsamy was honoured with the Frost and Sullivan Lifetime Achievement Award 2014, by Frost and Sullivan, the global growth consulting company, headquartered in California towards his great contribution in the field of ophthalmology in Asian sub-continent. The award was presented during the 6th Annual India Health care Excellence Awards 2014 held in September at Mumbai.

ACOIN Life Time Achievement Award

Dr. P. Namperumalsamy was presented with the Life Time Achievement Award by the Association of Community Ophthalmologists of India at Kolkata on November 1.

Lifetime Achievement Award

Dr. P. Namperumalsamy was awarded Lifetime Achievement Award by the Vitreo Retinal Society of India at the annual conference held in New Delhi on December 6. The award recognised his contribution to the development of vitreoretinal services in India.

Puthiya Thalaimurai Tamilan Virudugal Award

Dr. G. Natchiar was awarded Puthiya Thalaimurai Tamilan Virudugal Award by Puthiya Thalaimurai television channel on July 27 at Chennai. The award was given to recognise her selfless service in restoring sight to many.

Lifetime Achievement Award

Dr. M. Srinivasan was awarded Lifetime Achievement Award by the Cornea Society of India at the annual conference of the Society, KERACON held at Mahabalipuram on December 20.

One among the 30 most Influential People in Public Health

Mr. R.D. Thulasiraj was selected one among the 30 Most Influential People in Public Health by the Master's in Public Health Degrees, premier online resource guide for exploring and choosing from the highest quality Master of Public Health (MPH) degree programmes.

Most Inspiring Health care Leader of the Year Award

Mr. R.D. Thulasiraj received the first edition of the Health care Achievers Awards 2014 presented by New India Assurance and an initiative by The Times of India on December 11 at New Delhi. *The Most Inspiring Health care Leader of the Year Award* was presented to him for his leadership, knowledge and contribution to the Health care sector.

Lifetime Achievement Award

Dr. R.D. Ravindran was awarded Lifetime Achievement Award by Saveetha University, Chennai in November.

Prof B P Kashyap Memorial Award

Prof. B P Kashyap Memorial Award was presented to Dr. S.R. Krishnadas during the 12th Annual Conference of Jharkhand Ophthalmic Society held at Bokaro Steel City on November 29 - 30.

IIRSI Gold Medal

Dr. N. Venkatesh Prajna was awarded gold medal for his contribution to research and residency education by the Indian Intraocular Implant and Refractive Society on July 5 at Chennai.

Icon of Coimbatore Award

Dr. V. Narendran was bestowed with the Icon of Coimbatore Award on January 22 for his contribution towards the betterment of the society.

UKSOS Gold Medal

Dr. Naresh Babu was awarded Gold Medal for Excellence in Ophthalmology by the Uttarakhand State Ophthalmological Society at the Uttara EyeCon 2014 held at Mussorie on October 4.



Most Inspiring Health care Leader of the Year Award for Mr. R.D Thulasiraj



Dr. P. Namperumalsamy with Dr. M.S. Swaminathan at the Dr KS Sanjivi Endowment Oration



IIRSI Gold Medal for Dr. Venkatesh Prajna



Lifetime Achievement Award for Dr. M. Srinivasan



Dr. M. Srinivasan delivers Dr.Narendra Swarup Memorial Oration



Frost and Sullivan Lifetime Achievement Award 2014 for Dr. P. Namperumalsamy



Dr. V. Narendran bestowed Icon of Coimbatore Award



Puthiya Thalaimurai Tamilan Virudugal Award for Dr. G. Natchiar



Lifetime Achievement Award for Dr. R. D. Ravindran



UKSOS Gold Medal for Dr. Naresh Babu



Aravind - Pondicherry Bags Prize at Farm Fest Show 2015

As Special Invitees for Memorial Orations

DR. P. NAMPERUMALSAMY

- Delivered Dr. Samir Biswas Memorial Oration on *Combating Blindness from Diabetic Retinopathy in India* at the Annual Conference of the West Bengal Ophthalmological Society held at Kolkata on November 20 - 22.
- Delivered the Dr. KS Sanjivi Endowment Oration on *An Affordable Health care Delivery Model - Challenges & feasibility based on Aravind model* at The Voluntary Health Services Hospital (VHS), Chennai on December 27. He was also awarded medallion by Dr. M.S. Swaminathan, Director - VHS, who presided over the function.
- Delivered the Dr. T.N.C. Vedantham Memorial Oration on *Diabetic Retinopathy: Community Based Management* at the CME on Retinal Vascular Disorders organised by Radhatri Netralaya at Chennai on September 14.
- Delivered the Tun Hussein Onn Memorial Lecture on *Diabetic Retinopathy: The Looming Global Health Crisis* at the 10th Anniversary Meeting of the ASEAN Association of Eye Hospitals at Kuala Lumpur, Malaysia on November 29

DR. M. SRINIVASAN

- Delivered the 11th Dr. Narendra Swarup Memorial Oration on *Prevention of Corneal Ulcer and Related Vision Loss* at the CME organised by Swarup Eye Centre at Hyderabad on May 25.

Recognition at AGS 2015

A surgical video titled *Outcomes the buckle and in goes the plate...* on AADI (Aurolab Aqueous Drainage Implant) produced by Dr. George V Puthuran and presented by Dr. Alan Robin was placed second at the annual American Glaucoma Society 2015 Meeting in Coronado, CA on February 27.

Tun Hussein Onn Oration Award to Dr. P.Namperumalsamy



ASCRS Best Paper Award

Aravind - Coimbatore team consisting of Dr. V.R. Saravanan, Dr. V. Prabhu and Dr. Kalpana Narendran won Best Paper Award for the paper titled *Retrospective study of visual outcomes and complications after sutureless, flapless and glueless intrascleral fixation of posterior chamber IOL in cases with inadequate capsule support* at the ASCRS Symposium held at Boston, Massachusetts, USA from April 25 - 29.

Best Video Award

Dr. Parag K Shah received Best Video Award for the video titled *Scleral auto graft for management of chronic maculopathy associated with optic nerve head pit* at the 23rd Annual Vitreo Retinal Conference held at Agra, during December 5 - 7.

Awards at the Annual Conference of Tamil Nadu Ophthalmic Association

Coimbatore, August 8-10

DR. K. VEENA

- Best Paper Award for the paper, *Quick photo assessment: An innovative way of school eye screening*

DR. SHABANA BHARATHY

- Best Paper Award for the paper, *Family screening in glaucoma patients and its outcome*. He also won award for the best E-Poster, for his presentation, *Trabeculectomy with scleral patch graft for advanced glaucoma in Ehler Danlos Syndrome*.

Dr. HariPriya Aravind has been selected for the Dr. M.N. Endowment Award for the paper, *Aravind Pseudoexfoliation Study - Intraoperative, Immediate and 2 Years Post-operative Results*. The award will be presented during the next annual conference of the TNOA.

Dr. Karan Kumarasamy, Aravind - Coimbatore won First Prize in Ophthalmology General quiz.

Dr Ashish Ahuja, from Aravind -Tirunelveli won first prize in E T Selvam Quiz Competition.

T. Mark Hodges International Service Award

Mr. L. Kirubanithi received the prestigious T. Mark Hodges International Service Award 2014 from the Medical Library Association (MLA) on May 19 at Chicago, USA. The award recognises his contributions in laying the foundation for MLA's second century of excellence and achievement in the health information profession.



T. Mark Hodges International Service award for Mr.L.Kirubanithi

Dr. G. Venkataswamy Gold Medal

Dr. Vini Goyal and Dr. Urmil Shah were awarded Dr. G. Venkataswamy Gold Medal in the speciality of ophthalmology by the National Board of Examinations on May 12 at New Delhi.

Winners of Allergan Quiz Competition

Dr. O. Annamalai and Dr. Kausthub became the winner and second Runner up of the Erudio quiz competition organised by Allergan India Ltd; , Pondicherry. They were entitled for a free trip to Malaysia to attend the APACRS 2015 conference.

AIOS Award

Dr. Arijit Mitra was awarded Best Paper Award for his paper, *An AS OCT based study to note the progression of PACS patients to Primary Angle Closure (PAC) and Primary Angle Closure Glaucoma (PACG)* at the Annual Conference of All India Ophthalmic Society held at Agra on February 5. Dr. O. Annamalai won second place at Sun Pharma Quiz organised as part of the conference.

Ms. Chidambaram receiving the Best Nurse Award



Best Nursing Care Award

Ms. Chidambaram was awarded AVK Kalvi Kuzhumam award for her excellent services rendered towards patient care on May 8.

She was also presented with the Best Nurse Award for her selfless work and service by Lions Club of Tirunelveli Star on December 31.

Certificate of Appreciation

Ms. V. Arumugam and Ms. Ayirathammal were recognised for their selfless work by the Rotary Club of Tirunelveli North on October 12.

Certificate of Appreciation

Youth Red Cross wing of Indian Red Cross Society presented Certificate of Appreciation to Aravind Eye Hospital for its service to society at a function held at Madurai Kamaraj University on October 29. Mr. R. Meenakshi Sundaram received the same on behalf of Aravind.

Best Paper Award at the International Conference on Contemporary Research Trends in Diagnostics and Therapeutics

Mr G Ramesh Kumar won first prize under Free Paper presentation for the topic, *Prevalence of ESBL and MBL producing Pseudomonas aeruginosa isolates from ocular infections in Tertiary Eye Care Hospital at South India* at the three day conference held at Chennai from February 16 - 18.

First Prize at Farm Fest Show 2015

The Department of Agriculture, Government of Puducherry conducted XXVIII Flower, Vegetable and Fruit show from 6th March to 8th March 2015. Aravind Eye Hospital, Puducherry won first Prize for ornamental, herbal and kitchen garden for the fifth consecutive year.

Women's Day Excellence Award

Dr. Usha Kim and Ms. Aleykutty Varghese were honoured with International Women's Day Excellence Award by the Lions Club of Madurai Delight District 324-B3 at Tirunagar on March 8.

Ms. Saradha Ramakrishnan was honoured with Best Woman Award by the Bharathiyar Ulaga Podhu Sevai Mandram, Tirunelveli.

PARTNERS IN SERVICE

Though Aravind's core operation is self-sustainable, the organisation is indeed fortunate to be supported by many in taking forward its eye care programmes including research and capacity building for the benefit of millions. The organisation sincerely values all support from its friends and well-wishers for their contribution towards its mission of eliminating needless blindness.

For service delivery, training and more

- Acumen, USA
- Alcon Laboratories Inc, USA
- Bloomberg School of Public Health, Johns Hopkins University, US
- Canadian International Development Agency, Canada
- Carl Zeiss Meditec, Germany
- CBM International, Germany
- Centre for Innovation in Public Systems, Hyderabad, India
- Combat Blindness Foundation, USA
- Essilor, India
- Fred Hollows Foundation, Australia
- Hilton Foundation, USA
- Indian Institute of Management, Bangalore, India
- International Federation of Eye Banks, USA
- Indian Overseas Bank, Chennai, Madurai
- International Agency for Prevention of Blindness
- International Council for Ophthalmology, London
- Lavelle Fund for the Blind, USA
- Lions Clubs International Foundation, USA
- London School of Hygiene & Tropical Medicine
- Narotam Sekhsaria Foundation, Mumbai
- ORBIS International, USA
- Rotary International, USA
- Schwab Foundation and Social Entrepreneurship, Switzerland
- Seva Foundation, USA
- Seva Service Society, Canada
- SightLife, USA
- SightSavers, UK
- State Bank of India, Madurai
- Standard Chartered Bank, UK
- SoHum Foundation, US
- Topcon, Japan
- University of Michigan, USA
- University of California, Berkeley
- USAID
- VISION 2020 - The Right to Sight, India
- Wescott Williams Ltd., UK
- World Diabetes Foundation, Denmark
- World Health Organization (WHO), Geneva, Switzerland
- XOVA: Excellence in Ophthalmology Vision Award

For research

- Alagappa University, Karaikudi
- All India Institute of Medical Sciences, New Delhi, India
- Aravind Eye Foundation, USA
- Council of Scientific and Industrial Research, New Delhi, India
- Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR), New Delhi
- Department of Biotechnology, New Delhi, India
- Department of Science and Technology, New Delhi, India
- Francis I. Proctor Foundation for Research in Ophthalmology, UCSF, USA
- Indian Council of Medical Research, New Delhi, India
- Indian Institute of Technology, Chennai
- London School of Hygiene and Tropical Medicine, UK
- Madurai Kamaraj University, Madurai, India
- National Eye Institute, USA
- North Eastern Hill University, Shillong, India
- Sastra University, Thanjavur
- Singapore National Eye Centre, Singapore
- Sichuan Academy of Medical Sciences & Sichuan provincial peoples Hospital, Sichuan, China
- Sri Ramachandra University, Chennai
- Science and Engineering Research Board, New Delhi, India
- Subroto Bagchi grant, Bangalore
- Tamil Nadu Dr. M.G.R. Medical University, Chennai, India
- University of Liverpool, Liverpool, UK
- University of Pennsylvania, Philadelphia, USA
- University of Tasmania, Australia
- University of Wisconsin, Madison, USA
- Vision Research Foundation, Sankara Nethralaya, Chennai
- Wellcome Trust, UK
- World Health Organization, Switzerland

ARAVIND EYE FOUNDATION

Aravind Eye Foundation helps promote sustainable, high quality, patient-centric eye care across the world by facilitating knowledge exchange and active partnerships with higher education, social enterprise, health care, government and non-profit organisations. The Foundation also provides funding to those programmes of the Aravind Eye Care System, which are not self-sustaining by Aravind's core operations.

Spectacles for Scholars

Aravind's highly successful Spectacles for Scholars programme continues to grow. The past year, Aravind Eye Foundation funded school screening projects in, Madurai, Coimbatore, Salem, Tirunelveli and Theni; 19,090 children have been seen by the medical teams and 4,934 glasses have been dispensed.

The program helps children like Rajameenakshi and her friends. Rajameenakshi attends a government school, not far from the famous Meenakshi Amman temple. She's nine years old and wants to be an engineer. She works hard in school to get good grades. But she started having trouble with her schoolwork, because she couldn't see the blackboard.

Aravind's Spectacles for Scholars team came to her school and tested the students' eyesight about four percent of the class needed eyeglasses. Rajameenakshi is back on track to fulfil her dreams.

Aravind Eye Foundation is expanding the Spectacle for Scholars programme to screen half a million children annually by 2020, and extend the programme to all Aravind Eye Hospitals.

A student being provided with spectacles at a school children screening camp



Child suffering from retinoblastoma

Ring of Hope

Retinoblastoma is a disfiguring, often fatal eye cancer, primarily affecting children under 5 years old. A full cycle of treatment costs more than \$1000, which is well beyond the budget of the typical Indian family.

The Ring of Hope Fund pays for complete treatment - diagnosis, surgery, chemotherapy, radiation, custom-made prostheses, family counselling and transportation for all follow-up appointments. This year 32 new patients and 365 follow-up patients were treated completely free of charge. Since 2004, more than 4,000 patient visits have been funded by the Ring of Hope.

Scene from a school children screening camp





DNA isolation from blood of a retinoblastoma patient for genetic screening of RB1 gene



Ms. Donna Campbell and Mr. Mohammed Gowth at AEF - supported Patthamadai Vision Centre

Research

In the United States, 90% of the children recover from retinoblastoma - a virulent form of eye cancer; in India, 90% of children die because diagnosis and treatment come too late. Genetics play a major role in determining who develops retinoblastoma and genetic testing can help identify patients who are likely to be afflicted with this terrible disease.

But genetic testing is extremely expensive - nearly \$1500 per test, and all family members must be tested. With the support of the Allene Reuss Memorial Trust, the SoHum Foundation and many individual donors, Aravind has established Asia's first genetic testing lab for retinoblastoma. The cost per test will be \$200 and the time to test greatly reduced, saving the lives and sight of many more children.



Patient being examined at Tiruchuli Vision Centre

Rural Vision Centres

The World Health Organization calls Rural Vision Centres "an innovation that democratizes health care". By 2020, Aravind plans to open 150 centres, and provide access to eye care 10 million people.

With support from the SoHum Foundation, Proof Eyewear, the Liane Ginsberg Foundation, Anne and Julie Kelly, and many individual donors, the foundation has funded eleven centres - all are on track to be self-sustaining after two years. Last year, these centres saw 68,900 patients; 3,800 of those patients were referred for cataract surgery and 10,200 patients ordered glasses.

Capacity Building

Aravind's impact extends far beyond its own hospitals and Vision Centres. Aravind's Health care consulting group, LAICO, has consulted with more than 300 hospitals in the developing world to help them increase market demand, quality of patient care and efficiency.

Lavelle Fund for the Blind has awarded a four-year grant of nearly \$1 Million for capacity building with 25 hospitals across India and neighbouring countries. This grant will support training, IT development, outreach and a seed grant to the individual hospitals.

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