

ARAVIND EYE CARE SYSTEM



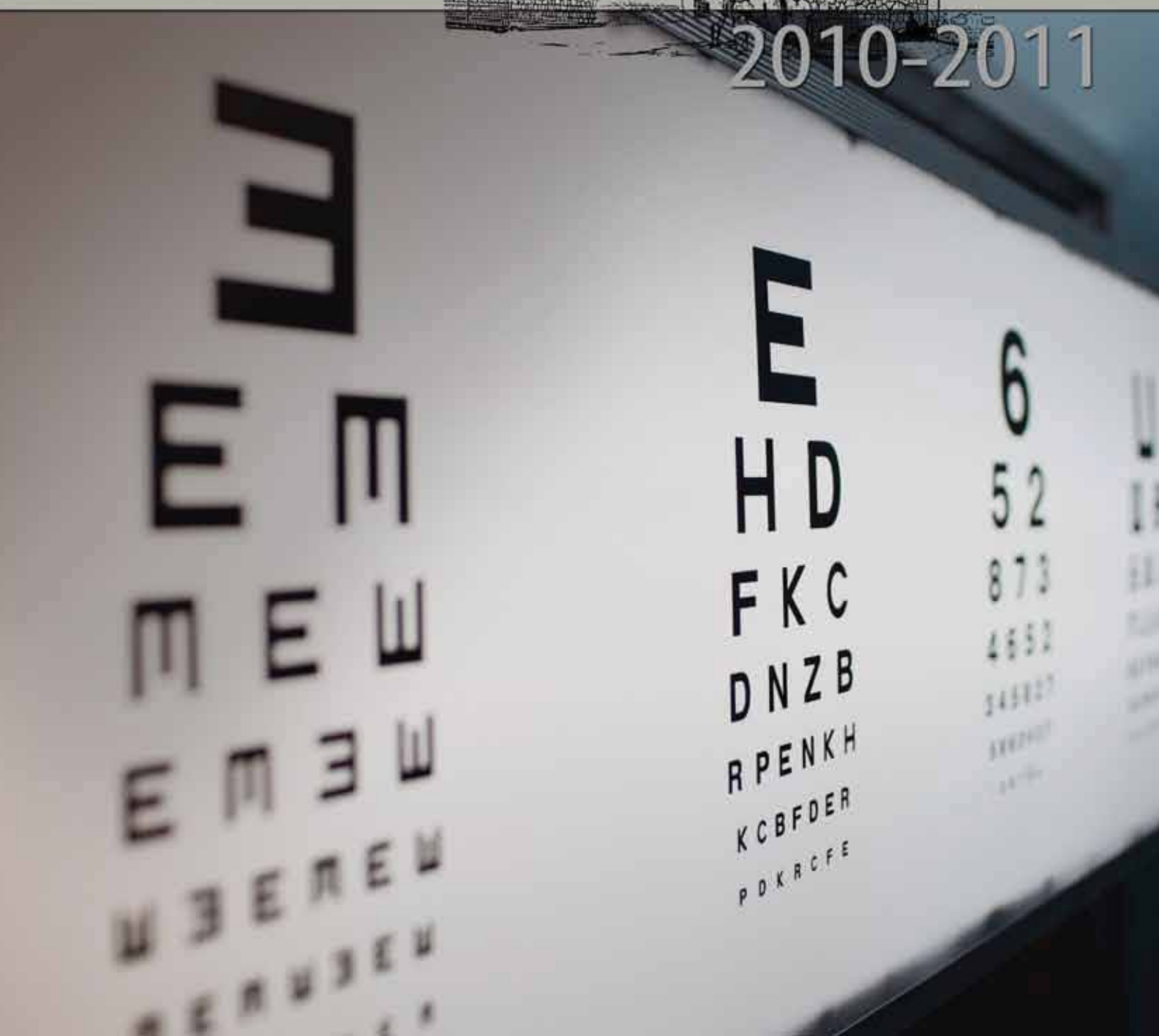
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activity report

2010-2011



ARAVIND EYE CARE SYSTEM
ACTIVITY REPORT 2010 - 2011

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Sukumar, Aravind-Pondicherry
Vijayakumar, Aurolab
Willie Davis, USA*



*In a contrary balance to earth's truth of things
The gross weighs less, the subtle counts for more;
On inner values hangs the outer plan.
As quivers with the thought the expressive word,
As yearns the act with passion of the soul
This world's apparent sensible design
Looks vibrant back to some interior might.*

'Savitri' by Sri Aurobindo

Book II: The Book of The Traveller of the Worlds,

Canto VI: The Kingdoms and Godheads of the Greater Life

Aravind Eye Care System

Mission:

To eliminate needless blindness . . .

Aravind Eye Hospitals

. . . by providing compassionate and high quality eye care for all

Lions Aravind Institute of Community Ophthalmology (LAICO)

. . . through teaching, training, capacity building, advocacy, research and publications

Dr. G. Venkataswamy Eye Research Institute, Aravind Medical Research Foundation

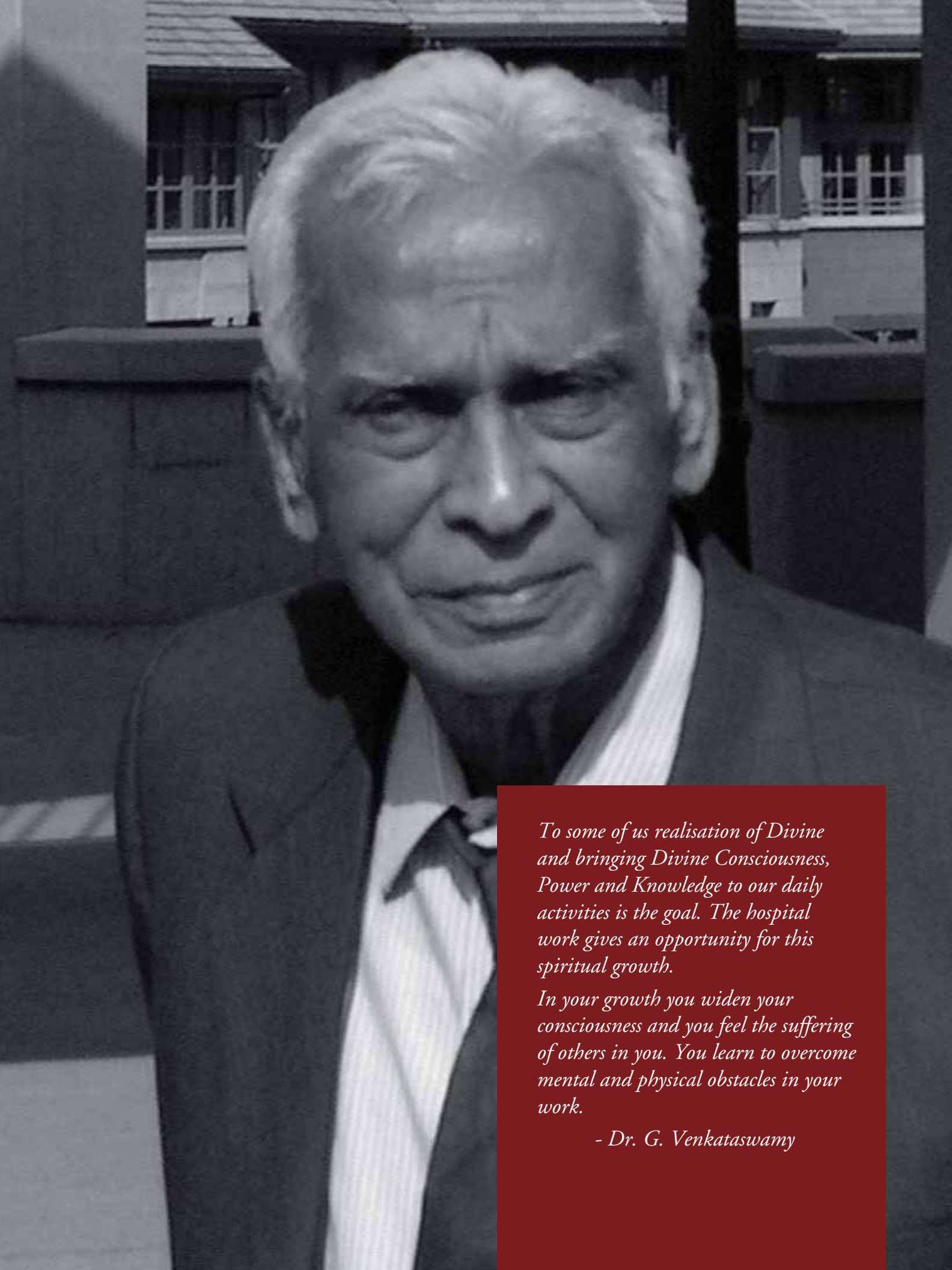
. . . by providing evidence through research and evolving methods to translate existing evidence and knowledge into effective action

Aravind Eye Banks

. . . by reducing corneal blindness through eye banking activities, training, research and public awareness programmes

Aurolab

. . . by making high quality ophthalmic products affordable and accessible worldwide



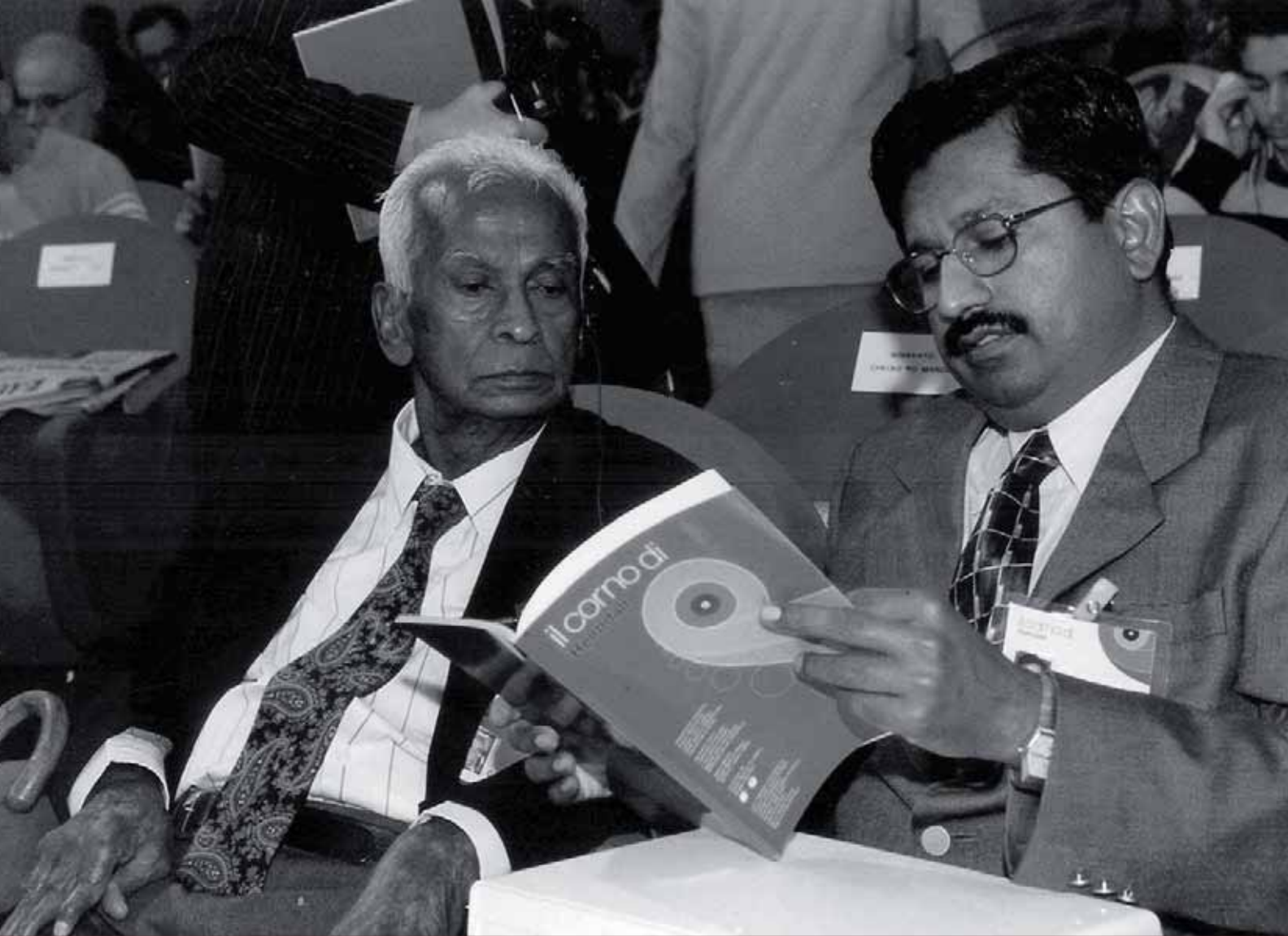
To some of us realisation of Divine and bringing Divine Consciousness, Power and Knowledge to our daily activities is the goal. The hospital work gives an opportunity for this spiritual growth.

In your growth you widen your consciousness and you feel the suffering of others in you. You learn to overcome mental and physical obstacles in your work.

- Dr. G. Venkataswamy



*The founding team in 2001:
L-R : Dr. Natchiar, Mr. Thulasiraj, Dr. Vijayalakshmi,
Dr. M. Srinivasan, Dr. P. Namperumalsamy and
Mr. G. Srinivasan with Dr. V seated at the centre*



Highlights 2010-11

Dr. R.D. Ravindran with Dr. V at Rimini, Italy in July 2002

Aravind Coming of Age

All organisations have milestones. Some are planned far ahead of time and achieved only through strategic goals and objectives, and careful resource allotment. But there are also milestones that are crossed more organically – and are a cause for special celebration. The transition in executive leadership that happened at Aravind this year falls into the latter category. Aravind’s founding team that built a revolutionary organisation from scratch, made the momentous decision to pass the reins on to the next generation of leadership.

Dr. R. D. Ravindran was named the new Chairman of Aravind Eye Care System. The mantle was passed to him from Dr. P. Namperumalsamy, who stepped down on 12th July 2010. The erstwhile chairman brought many laurels to the organisation, including a spot on Time Magazine’s list of the 100 most influential people in the world.

Dr. G. Natchiar, who served as the Director of HR, literally handpicking the 3000 strong workforce of Aravind, handed over her responsibilities to Dr. S. R. Krishnadas. Dr. R. Kim took over the role of Director of IT from Mr. R.D. Thulasiraj, who kept Aravind at the cutting



Dr. R.D. Ravindran on the occasion of 'taking over the charge as the Chairman' with the senior leaders on July 12, 2010

edge of technology. Meanwhile Dr. N.V. Prajna has been identified to oversee the organisation's finances, the role Mr. G. Srinivasan has so ably managed to-date. The latter has ensured Aravind's financial viability through the decades, even with 60% of its patients receiving free or steeply subsidised care.

Aravind's founding members continue to serve as invaluable mentors, enriching the transition process with their insights and hard-won expertise. With the leadership transition, a new governance system is emerging, that is increasingly inclusive and gives voice

to all facets of the organisation. The strategic decision making that was unerringly guided by the instincts of the founding team, is now transforming into a more multi-stakeholder, evidence-based, decision-making process.

An anticipated milestone this year was the "Silver Jubilee Celebrations of Aravind Eye Hospital, Theni," on 10th October 2010. The event brought together the community served by the hospital and government officials who appreciated Aravind's sustained contributions to the people of Theni district. A four day exhibition on eye care was arranged for the public as part of the celebrations.

Dr. Datta addressing the gathering at the Silver Jubilee celebrations of Aravind-Theni



Aravind Continues to Grow

As the awareness and need for eye care increase, so does the demand. In order to meet these expanding needs and improve access, Aravind is creating a series of smaller eye hospitals in areas of high demand, based on current trends in patient load. As part of this new initiative, Aravind opened two secondary eye care centres at Dindigul and Tirupur in September and October, respectively.

The newly built inpatient building at Aravind – Madurai is getting ready for occupation. It will house superbly-designed operating rooms, offer an elegant ambience for inpatients, and provide ample basement parking. Once this building is ready for occupation in April 2011, it will in turn release much needed space for the expansion of Aravind’s outpatient services.



Aravind Eye Hospital at Tirupur

The new Inpatient Building at Aravind-Madurai



Continuing with the strategy to deepen the reach through primary eye care, new Vision Centres were opened at Singampunari, Kariyapatti, Peraiyur and Kalayarkovil, increasing the total number of vision centres to 36.

New Initiatives

Aravind's research activities continue to make significant contributions in understanding the basic biological mechanisms of eye diseases. A one-week workshop on Stem Cells for Vision was organised by Aravind Medical Research Foundation to provide hands-on experience to young scientists. This training course, sponsored by Indian Council of Medical Research and Defense Research and Development Organisation, New Delhi, was the first of its kind in India.

The multidimensional growth of Aravind has been made possible by its constituents diversifying their activities rapidly – with everyone fully involved in the growth process. This and the geographical distances between each Aravind facility deterred opportunities for Aravind staff to meet informally. In order for the staff to stay connected AARANYA (An ARAvind New Year Aggregation), an informal get together of the senior staff of Aravind and their families was hosted for the first time by Aravind-Madurai during the New Year. The events organised for the staff and their families were enriching, informative and full of laughter. They included the “Helen Keller” dance performance by Mrs. Chitra Krishnamoorthy and her team, as well as an early morning hike at Keelakuyilkudi led by Professor Venkatraman, Madurai's very own



historian. His enlightening tour of the Jain caves in the area was a highlight of the programme.

In keeping with the organisation's ethos of continuous innovation, Aurolab introduced a range of new products in 2010: Voriconazole, a ready-to-use anti-fungal eye drop; Auroflex 360° Square Edged IOLs, that help prevent Posterior Capsular Opacification; Flures, a pyrogen and preservative free sodium dye for Fundus Fluorescein Angiography; Aurochart, a LCD vision chart incorporating several optotypes and diagnostic charts; Auro K Pro licensed by Boston Keratoprosthesis that offers a ray of hope for patients with multiple corneal graft failure, and Aurosharp, round stock blades.

Prof. Venkatraman with AARANYA participants at Keelakuyilkudi





'Helen Keller' Dance Drama

Ms. Mahalakshmi and Ms. Sarala with the District Collector of Madurai at the Melamadai clean up programme



Innovating a Learning Platform

Sharing expertise freely and widely is an integral part of Aravind's organisational ethos. Current mechanisms for this include publications, ongoing skill development courses and structured capacity building activities by Lions Aravind Institute of Community Ophthalmology. This year's innovation on this front was the launch of "Aurosiksha," a web-based, hybrid learning platform. With built-in pedagogical methods that promote effective adult learning, Aurosiksha aspires to make time-tested lessons available to individuals and teachers. Several hundred lessons are already online, with more being added continually. Trainers can use these lessons, designed by experts, and enhance them with their own nuanced understanding, as well as local context. Over time, Aurosiksha aims to boost the development of high-quality human resources in eye care, especially in areas with a dearth of quality training options.

Integration with the Community

When serving the community is the core purpose of an organisation, it takes special efforts to preserve key supporting values: compassion, concern and continuous engagement.

Aravind chanced upon a unique opportunity in the cultural arts realm when Dr. Chitra Krishnamoorthy, the Director of Nrityalaya School of Indian Classical Odissi Dance in Washington DC, USA, offered to have her troupe perform a multicultural dance drama honoring the life and work of Helen Keller as a fundraiser for Aravind. Instead the organisation chose to have the performance offered as a free-of-cost programme to the people of Madurai and played a key role in hosting the event. The Sathguru Sangeetha Samajam at Madurai came forward to schedule it as the inaugural event of their annual music and dance festival on January 1, 2011 and the citizens of Madurai enjoyed a spectacularly moving dance performance by the Nrityalaya team.

Aravind staff participate in cleaning temples in and around cities where Aravind Eye Hospitals are located, volunteer with other developmental organisations, host the "Madurai Readers Club" and address groups of students on career goals. Along these lines, a major activity taken up last year was a joint clean up initiative organized by EXNORA in co-operation with Aravind Eye Hospital, Soroptimist International and Indian Red Cross Society, in two neighbourhoods of the hospital – Melamadai and Gomathipuram. The clean-up programme included clearing garbage, creating alternatives for safe, residential garbage disposal, and public hygiene awareness campaigns.



TATA Jagriti Yatris at Aravind Madurai



For the third consecutive year, Aravind hosted the visit of TATA Jagriti Yatris, a highly motivated group of Indian youth and professionals who visit exemplary social initiatives all across India as part of an annual eighteen day national odyssey. This year over 400 members participated, all of them eager to understand the “business” of scalable, sustainable service. These young individuals are the true shapers of India’s future and Aravind considers it a rare privilege to share its insights and experiences from the field with this dynamic and deeply sincere group.

Eye care, like many other fields, is evolving rapidly with several technological advancements. Aravind feels the

responsibility to keep the community up-to-date.

To this end, a grand eye care awareness exhibition was organised by Aravind Eye Hospitals at Madurai, Pondicherry, Theni and Tirunelveli, which was visited by thousands of community members and students.

In Memory of the Founder

Vizhi Vaelvi, the biography of Dr. G. Venkataswamy written by Mr. Sivalingam, was released by Dr. APJ Abdul Kalam, former President of India, who readily accepted the

Dr. Venkatesh with Mr. R. Chandramohan, Chief Secretary, and other dignitaries at the ‘Kannae Nalama’ exhibition at Aravind-Pondicherry



Dr. R. Ramakrishnan and Mr. T. Varadharaju, Police Commissioner, Tirunelveli District at the ‘Kannae Nalama’ inauguration at Aravind-Tirunelveli





Dr. G. Natchiar, Dr. G. Nallakrishnan, Dr. Mayilvaganan, former President Dr. APJ. Abdul Kalam, Dr. P. Namperumalsamy, Mr. G. Srinivasan and Mr. Sivalingam at the launch of Vizhi Vaelvi

invitation, and believes in the importance of sharing Dr. V's work with the greater community.

The Dr. G. Venkataswamy Endowment Oration Award, instituted in memory of Aravind's Founder Chairman, was bestowed on Dr. Jack P. Whitcher of Francis I Proctor Foundation, USA, for his outstanding and ground-breaking work in the field of corneal disorders. At a stellar ceremony held at Dr. G. Venkataswamy Eye Research Institute on January 8, 2011, Honourable Justice P. Sathasivam, Judge, Supreme Court of India, presented

the award. In his speech, the Honourable Judge stressed that the medical profession stemmed out of the traits of humanity – compassion, kindness and benevolence.

Dr. Whitcher in his oration mentioned about learning from Aravind's founder that whatever one gave away in the spirit of service always found its way back tenfold.

The October Summit, a series of workshops held each year as a meaningful way of paying tribute to the Founder Chairman on his birth anniversary, received wide appreciation from participants. The workshops

Dr. Srinivasan, Dr. Jack P. Whitcher, Mr. Srinivasan, Justice Sathasivam, Dr. Namperumalsamy and Dr. Ravindran at the Oration award ceremony



in this series included Research for Global Blindness Prevention, Private Practice in Ophthalmology, Evidence Based Management Practices, and Stem Cells for Vision.

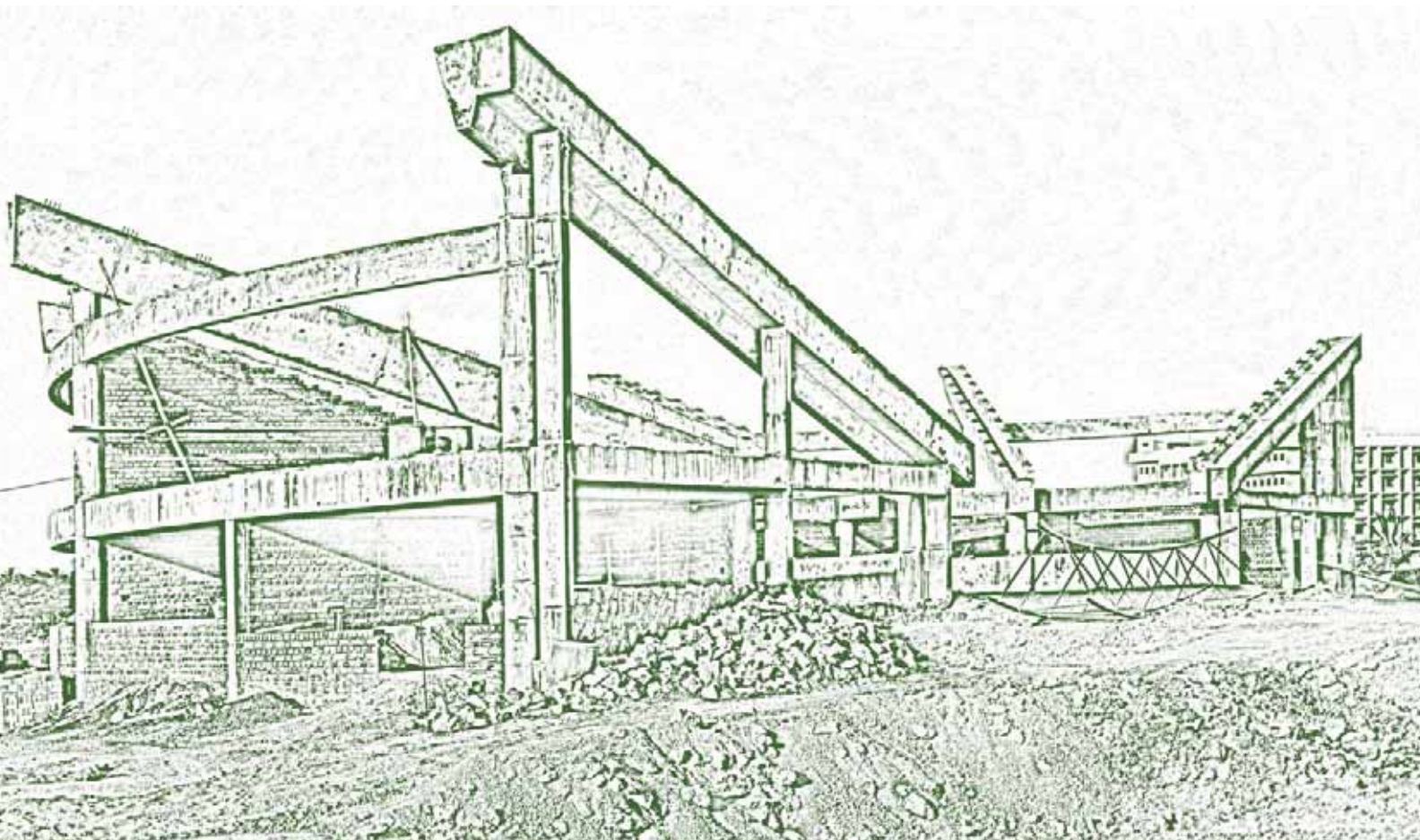
Keeping Dr. V's Vision Alive and Green

The idea of building a memorial centre first surfaced when the leadership at Aravind reflected on ways to honor Dr. V's vision and keep his spirit alive within the organisation. The initial thought was to have it house Dr. V's writing, memorabilia, his library collection and the like. But on further reflection, it was clear to the founding team and others that Dr. V would have shied away from the idea of creating a static "shrine" in his memory. He would wish for the building to serve a living and dynamic purpose. The idea for creating a space for contemplative practice as well as collective strategic planning and organisational retreats soon evolved. As various architectural options were considered it was agreed that the building should reflect Dr. V's passion for solar power and green building. Over the period of two years several architectural plans were drawn up and each one dismissed for various reasons, before the final one was selected. The architect Mr. Gnanaraj, had hit upon the perfect design. The brilliant floor plan even incorporated the Mother's



The combination of building, landscaped garden and pond together incorporate the Mother's symbol at the Memorial for Dr. V

symbol through a stunning combination of building, landscaped garden and ponds. As serendipity would have it, the entrance of the building lines up directly with a beautiful banyan tree Dr. V himself planted. The centre is currently under construction on the same grounds as Aurolab and Aurofarm. Its completion, slated for October 2011 will offer up a serene and inspirational space for internal practice as well as external dialogue and creative thinking.





Clinical Performance

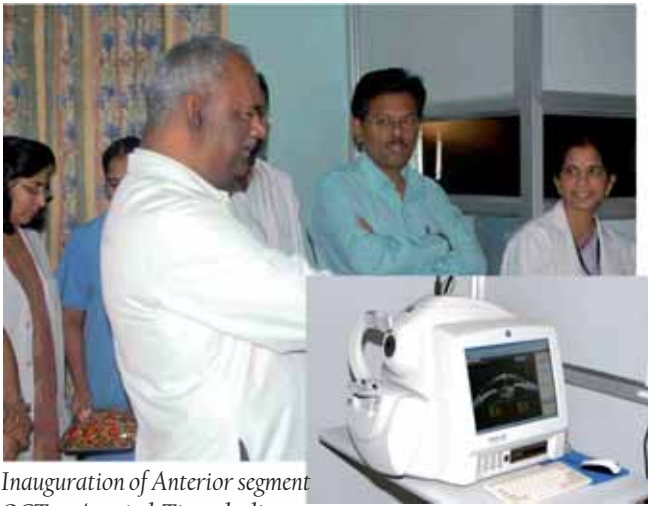
Dr. Usha Kim examining a young patient

The year 2010 – 2011 was one of significant developments at Aravind with the inauguration of a new inpatient block at Madurai and addition of two hospitals. The new hospitals at Dindugul and Tirupur were opened in September and October 2010 respectively and have since registered a steady growth in their performance.

To cater to the increasing patient load, the new inpatient facility at Aravind – Madurai is being readied for occupation and will become fully operational in April 2011. Sprawled over roughly 115,000 square feet, the new facility will offer an ambience well suited to providing compassionate and holistic eye care with excellence.

As Aravind gears to handle steadily increasing patient volumes, it puts equal emphasis on improving the quality of clinical services offered. All lessons learnt in the process are documented and are almost simultaneously shared both across the Aravind Eye Hospitals and with eye care workers from around the world. Listed below are some of the clinical developmental activities in the various departments across all Aravind Eye Hospitals in the last year.

The Paediatric Ophthalmology Clinic at Aravind – Madurai started a genetic counseling department in November 2010 to screen patients with genetic eye disorders and to provide them genetic counseling. Patients are informed of the genetic condition of the relevant



Inauguration of Anterior segment OCT at Aravind-Tirunelveli



Kidzone - at Aravind-Coimbatore

disease, its inheritance pattern, and any potential risk to other family members, as well as the benefits and limitations of genetic testing. The department currently concentrates on eye diseases like aniridia, albinism, Leber's hereditary optic neuropathy, Leber's congenital amaurosis, FEVR, congenital cataract, congenital glaucoma and X-linked retinoschisis.

In the Retina clinics, the screening procedure for Retinopathy of Prematurity was standardized. A new machine for performing vitrectomy and a new yellow laser machine have been installed at the Aravind-Madurai centre. To minimise crowding inside the Retina Clinic at Aravind-Madurai, the department has now formed a separate investigation area where examinations like FFA, OCT etc are conducted.

Kidzone – an optical shop exclusively for kids was opened at the Paediatric Ophthalmology Clinic at Aravind - Coimbatore on April 14, with facility for immediate delivery of glasses. The hospital also opened a new, exclusive library for trainees on August 27.

Dr. Krishnadas and Dr. Venkatesh and the parameter audit at Aravind - Pondicherry



At Aravind - Tirunelveli and Pondicherry, the Glaucoma clinics added to their equipment inventories Anterior segment OCT for better diagnosis of anterior segment disorders. It also opened a new library for Mid Level Ophthalmic Personnel.

Dr. Paul Homer, an ophthalmologist and low vision specialist from California visited the Aravind Vision Rehabilitation centre at Madurai. He donated several low vision aids to the clinic and shared his insights and expertise with the low vision team. He also delivered special lectures for Aravind's postgraduate students and for its doctors in the Retina and Paediatric ophthalmology departments.

Quality Management Initiatives

Aravind has developed parameters to benchmark the performance of each department holistically, – considering quality, service, costs, staff retention and academic activities. These parameters are developed for regular monitoring and to standardise the system and manpower across the various clinical and non-clinical departments. The departments present the parameter report in their weekly and monthly meetings and decide the actionable items. A quarterly review meeting is conducted in the presence of each hospital's Chief Medical Officer and its department heads. The annual parameter audit was conducted in January 2011 during which the team assigned for each hospital reviewed its performance and shared their feedback.

As part of the Total Quality Management Initiative, several activities were carried out at the IOL Clinic, Medical Records Department, Operation Theatre and Ward at Aravind - Madurai. A seminar was organised on May 20 by the CII (Confederation of Indian Industry) as a follow up to these Total Quality Management initiatives.

Staff of clinical trials department received training in 'Harmonization – Good Clinical Practice' (GCP) from Allergan faculty on July 7.

Out-Patient Visits

April 2010 - March 2011

	Madurai	Theni	Tiruneveli	Coimbatore	Pondy	Dindigul	Tirupur	Total
OUT PATIENT VISITS								
Paying (new+review)	472,407	72,458	245,967	323,587	207,315	24,867	31,549	1,378,150
Free (new+review)	148,433	21,075	65,513	104,941	65,215	-	-	405,177
OUTREACH								
FREE EYE CAMPS								
Comprehensive	100,315	22,309	44,447	83,893	61,043	-	122	312,129
Diab. Ret. screening	6,453	3,447	2,288	43,825	4,322	-	-	60,335
Refraction	20,917	4,723	8,680	12,975	7,788	-	193	55,276
School Children - through base hospitals	7,524	932	17,482	7,629	20,722	-	-	54,289
School Children - through vision centres	2,404	1,270	522	2,165	466	-	-	6,827
Children below 16 years Mobile van refraction	-	6,405	-	-	-	-	-	6,405
VISION CENTRES	74,441	44,776	37,083	25,666	19,546	-	-	201,512
COMMUNITY EYE CLINICS	73,724	18,560	44,613			-	-	136,897
TOTAL OUTPATIENT VISITS	909,404	196,281	478,289	606,478	398,946	24,867	31,864	2,646,129

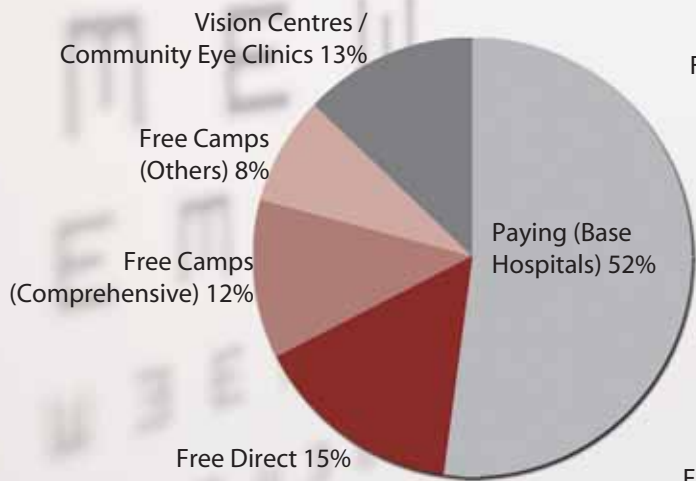


In the year ending March 2011, over 2.6 million out-patient visits were handled and over 315,000 ophthalmic surgeries and laser procedures were performed across all Aravind Eye Hospitals

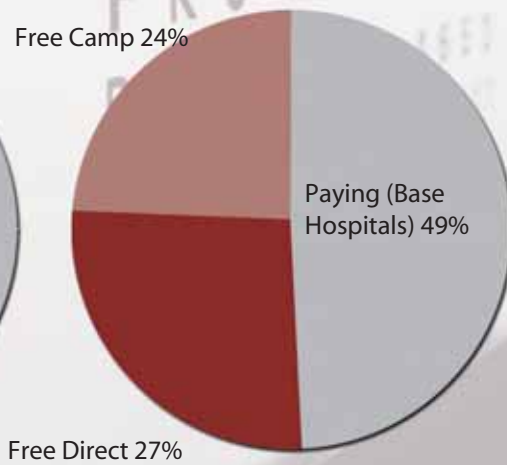




Out Patient Visits



Surgeries



Surgeries and Laser Procedures

April 2010 - March 2011

	Madurai	Theni	Tiruneveli	Coimbatore	Pondy	Dindigul	Tirupur	Total
SURGERIES								
Paying	64,957	6,057	24,583	38,231	19,856	992	413	155,089
Free Hospital Direct (Free and Subsidised)	36,563	2,881	11,095	24,193	9,487	-	-	84,219
Free camp	29,460	2,710	11,029	18,886	14,085	-	5	76,175
TOTAL SURGERIES	130,980	11,648	46,707	81,310	43,428	992	418	315,483
SURGERIES IN DETAIL								
Cataract surgeries	86,156	9,252	31,346	51,284	28,792	719	325	207,874
Trab and comb. procedures	2,403	163	1,161	2,089	544	-	6	6,366
Retina and vitreous surgery	3,448	10	594	2,898	1,141	-	-	8,091
Squint correction	918	-	228	601	140	-	-	1,887
Keratoplasty	1,027	-	162	685	193	-	-	2,067
Pterygium	1,457	126	290	1,043	620	11	-	3,547
Ocular injuries	383	23	97	397	374	-	-	1,274
Lacrimal surgeries	3,056	94	900	943	893	-	-	5,886
Laser procedures	24,546	1,626	9,607	16,679	7,893	236	74	60,661
Other orbit and oculoplasty surgeries	3,300	213	843	1,778	977	18	-	7,129
Others	2,129	141	590	2,082	1,120	8	13	6,081
LASIK refractive surgery	2,157	-	889	831	741	-	-	4,620
TOTAL SURGERIES	130,980	11,648	46,707	81,310	43,428	992	418	315,483



NEW VISION CENTRES

April 2010 - March 2011



Kalaiyarkoil



Singampunari



Kandamanur



Ulunthurpet
Singampunari
Kandamanur
Kariyapatti
Peraiyur



Ulunthurpet



Kariyapatti



Peraiyur





Community Outreach

School children learning about refraction at the 'Kannae Nalamai' eye care awareness exhibition at Aravind-Madurai

To address the steep escalation in the incidence of diabetes in India, Aravind's outreach department considerably increased the number of diabetic retinopathy screening camps in the last year. Similarly, to identify and treat the large number of children afflicted with childhood eye diseases, the number of screening camps for children was scaled up.

A new approach to community outreach was adopted under the "Vision Screening Programme in Private Schools". In this method, instead of training teachers to perform screening tests, refractionists from the hospital were sent for conducting the same at schools. Those detected with problems were referred to the base hospital

on allotted Sundays. This approach has been extremely beneficial in promoting better health seeking behavior as well as better acceptance by the schools. Under this initiative, 16,982 students were screened by refractionists, and 460 among them were examined by ophthalmologists at the base hospital.

At Aravind – Madurai, from January 2011, family screening for glaucoma patients was more focused through specific counseling. A free family screening camp was conducted on March 6 at the free hospital premises for the siblings of Glaucoma patients. In total, 333 patients were screened and 25 among them were newly diagnosed with the disease. Glaucoma screening camps were conducted in



Glaucoma awareness exhibition at the Pondicherry beach road by Aravind-Pondicherry on World Glaucoma Day



Kannae Nalama awareness Exhibition at Aravind-Tirunelveli

vision centers and community centers. A total of 22 such camps were conducted. 1,461 patients were screened in total, and 676 were newly diagnosed with glaucoma.

Special camps were conducted in vision centres and community centres to reach those visually impaired people who find it difficult to access low vision services.

In the year ending March 2011, a total of 2,639 camps were conducted and 524,393 patients were screened and 76,033 underwent surgery. As part of the 3 year Lavelle project “Eye Care for A Million Children”, Aravind - Tirunelveli and Pondicherry screened close to 2 lakh school children with the help of teachers trained by ophthalmologists.

Vision Centres

Vision centres and community eye clinics established in different parts of the state, over the years, have brought

World Diabetes Day at Aravind-Theni

a paradigm shift in the scale of penetration of eye care services amongst the rural and semi urban community. The mobile refraction unit introduced by Aravind in March 2010 proved to be a timely initiative in enhancing the uptake of refraction services.

Aravind established new vision centres at Singampunari, Kariyapatti, Peraiyur, and Kalaiarkovil thus bringing the total number to 36. Two of the existing centres were relocated to Ulunthurpet and Kandamanur.

Eye Care Awareness Programmes

Apart from screening patients through vision centres, community eye clinics and camps, the outreach department organises eye care awareness programmes. Anniversaries of vision centres and special days like World Glaucoma Day, World Diabetes Day, etc. present





Payanam - an audio visual at Kannae Nalamaa awareness exhibition, Aravind-Madurai

themselves as occasions for conducting eye care awareness seminars and speciality eye screening programmes for the public. A series of awareness exhibitions, named “KANNAE NALAMAA” was arranged at Aravind-Madurai, Tirunelveli and Pondicherry.

Refractive errors still remain a major cause of vision impairment in India. Special training programmes for the school teachers to detect refractive errors in children were also arranged.

“Payanam” an audio visual aid – was prepared by the Aravind paediatric ophthalmology department with support from A2Z Micronutrient and Child Blindness Programme. The video focuses on early detection and treatment of childhood diseases, like refractive error, cataract, strabismus and amblyopia. It is introduced as an

Sponsors’ day celebration at Aravind - Madurai



Eye care awareness seminar for office bearers of Lions clubs at Aravind-Coimbatore

approach to increase awareness on childhood diseases in the community.

Seminars are conducted for the new office bearers of the Lions clubs, with focus on educating them on common eye diseases, enabling them to organise eye camps more effectively. In the last year, four such seminars were held at different centres of Aravind.

Sponsors’ Day at Aravind

Sponsors’ Day is organised once in two years to honour the camp sponsors and to acknowledge their invaluable contribution to Aravind’s community outreach programmes. Conducted in October 2010 at Aravind – Madurai, Tirunelveli and Pondicherry, this opportunity was also utilised to get the sponsors feedback on how to conduct the camps more effectively.

Outreach Performance April 2010 - March 2011

	Madurai	Theni	Tirunelveli	Coimbatore	Pondicherry	Tirupur	AECS Total
1. Regular comprehensive eye camps							
Camps	359	108	272	385	256	1	1,381
Patients examined	100,315	22,309	44,447	83,893	61,043	122	312,129
Glass advised	19,331	6,090	9,739	18,272	14,995	20	68,447
Glass ordered	17,093	5,286	8,307	14,921	13,019	18	58,644
On the spot deliveries	13,220	3,271	6,486	13,686	9,672	10	46,345
%	77%	62%	78%	92%	74%	56%	79%
2. Diabetic retinopathy screening camps							
Camps	42	24	22	208	23	-	319
Patients screened	6,453	3,447	2,288	43,825	4,322	-	60,335
Diabetics identified	3,351	1,449	1,170	11,203	1,480	-	18,653
DR Patients Identified	534	230	255	2,086	159	-	3,264
3. Refractive error camps							
Camps	92	20	48	59	35	1	255
Patients examined	20,917	4,723	8,680	12,975	7,788	193	55,276
Glasses prescribed	6,012	1,322	2,398	3,867	3,024	50	16,673
Glasses ordered	5,304	1,141	2,041	3,207	2,517	33	14,243
On the spot deliveries	3,387	639	1,634	2,027	859	26	8,572
%	64%	56%	80%	63%	34%	79%	60%
4. Eye screening of school children- BH*							
Schools	56	5	120	20	152	-	353
Teachers trained	275	44	461	135	468	-	1,383
Total Strength	81,074	11,036	115,547	40,843	139,035	-	387,535
Children screened	7,524	932	17,482	7,629	20,722	-	54,289
Children with eye defects	3,491	605	7,680	3,643	6,645	-	22,064
5. Eye screening of school children - VC*							
Schools	20	76	2	10	7	-	115
Teachers trained	64	-	18	47	10	-	139
Total Strength	22,284	30,123	2,500	8,065	5,116	-	68,088
Children screened	2,404	1,270	522	2,165	466	-	6,827
Children with eye defects	983	1,149	390	888	198	-	3,608
6. Paediatric camps							
Camps	19	3	44	21	45	-	132
Children Examined	2,786	326	11,694	1,797	12,529	-	29,132
Refractive Error	471	21	340	71	436	-	1,339
Glasses prescribed	370	13	10	11	98	-	502
Glasses ordered	364	12	39	11	143	-	569
Other defects identified	213	3	115	100	414	-	845
7. Mobile van refraction camps							
Camps	-	84	-	-	-	-	84
Patients screened	-	6,405	-	-	-	-	6,405
Glasses prescribed	-	2,182	-	-	-	-	2,182
Glasses ordered	-	1,550	-	-	-	-	1,550
8. Vision centres							
Centres	13	8	5	5	5	-	36
New + Review	74,441	44,776	37,083	25,666	19,546	-	201,512
Outpatients / day	20	18	24	17	13	-	18
9. Community eye clinics							
Centres	2	1	1	-	-	-	4
New + Review	41,247	18,560	13,235	-	-	-	73,042
Outpatients / day	67	60	43	-	-	-	59
10. City centre							
Centres	1	-	1	-	-	-	2
New + Review	32,477	-	31,378	-	-	-	63,855
Outpatients / day	105	-	101	-	-	-	103

* BH - Base Hospitals; VC - Vision Centres



Education and Training Programmes

Dr. Kowsalya handling a session for the postgraduate students

Education and training of eye care personnel is a major focus at Aravind, and seen as an integral part of its service delivery at scale. Over the years, like its patient volume, the number of education programmes offered at Aravind has risen considerably. Today, it offers about 45 long-term and short-term courses for ophthalmologists, eye care management personnel, ophthalmic assistants and technicians. These courses are offered across all Aravind Eye Hospitals and through LAICO.

Last year the Retina clinic at Madurai launched an annual, 15-day virtual vitreo retinal training programme for retinal surgeons.

Paediatric Ophthalmology Clinic at Aravind – Madurai developed an Audio-visual guide ‘Step by Step Strabismus Surgery’ as a teaching aid for ophthalmologists aspiring to perfect this procedure.

Ophthalmology residents from various institutions around the world choose a rotation at Aravind as part of their residency programmes. Last year, ten residents from Mass Eye and Ear Infirmary, California Pacific Medical Center, and Wilmer Eye Institute in USA spent two to three weeks at Aravind.

The organisation continues to build on its continuing education efforts and enhance the capabilities of its staff at all levels.

CANDIDATES TRAINED 2010-11

POSTGRADUATE COURSES

	DURATION	CANDIDATES
Diploma in Ophthalmology (D.O)	2 years	4
Master of Surgery in Ophthalmology (M.S)	3 years	6
Diplomate of the National Board (Dip.N.B)	3 years	13
Post DO DNB	2 years	13

LONG TERM - OPHTHALMOLOGY FELLOWSHIP

Anterior Segment / Intraocular Lens Microsurgery	2 years	13
Orbit & Oculoplasty	18 months	3
Paediatric Ophthalmology & Strabismus	18 months	10
Glaucoma	2 years	11
Retina Vitreous	2 years	14
Cornea	18 months	10
Uvea	18 months	1
General Ophthalmology	18 months	1
Comprehensive Ophthalmology	2 years	2

SHORT TERM - FELLOWSHIP (ONLY FOR INTERNATIONAL CANDIDATES)

Orbit & Oculoplasty	6 months	2
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SHORT TERM - CLINICAL COURSES

IOL Microsurgery	1 month	27
Small Incision Cataract Surgery	1 month	47
Phacoemulsification	1 month	45
Diagnosis and Management of Glaucoma	1 month	34
Lasers in Diabetic Retinopathy	2 months	47
Short Term Training in Vitrectomy (Virtual)	2 weeks	17
Management of Retinopathy of Prematurity & Paediatric Retinal Disorders	1 month	1
Orientation to Paed. Ocular Anesthesia for Anaesthetist	1 month	3

SHORT TERM - PARAMEDICAL COURSES

Optical Dispensing	3 months	10
OT Techniques	2 months	5
Refraction Techniques	2 months	14
Orthoptist	6 months	4
Paediatric Nurse	3 months	7
Paediatric Counsellors	2 months	3
Ocularist	3 weeks	6
Fundus Fluorescein Angiography and Ultrasonography	2 months	5

MANAGEMENT COURSES OFFERED AT LAICO

Mgt. Priorities in Eye Care Delivery	1 week	20
Mgt. Training for Eye Care Programme Managers	2 weeks	30
Mgt. Training and Systems Development for Hospital Administrators / Managers	6 weeks	13
Project Management for Eye Care	4 weeks	4
Eyexcel – Expanding Global Eye Care Workforce through Excellence in Training	4 days	30
Research Methodology	5 days	34
Community Outreach and Social Marketing of Eye Care Services	1 month	15
Instruments Maintenance - For Ophthalmologists	5 days	1
Instruments Maintenance - For Technicians	6 weeks	23

TOTAL

548

DURATION CANDIDATES



MAJOR CONTINUING MEDICAL EDUCATION PROGRAMMES ORGANISED AT ARAVIND

Apart from organising several guest lectures, awareness exhibitions, seminars and grand rounds for the staff and doctors, Aravind Hospitals conduct CME programmes on varied topics to maintain competence and further develop their skills in their respective fields. Listed below are the major CME programmes conducted at Aravind:

Update in Ophthalmology for Medical Practitioners Aravind – Tirunelveli, October 24

This one day CME was conducted for general medical practitioners of Tirunelveli, Tuticorin and Kanyakumari. The purpose is to share the knowledge and create awareness about especially diabetic retinopathy, retinopathy of prematurity and paediatric refractive error among medical practitioners. A total 55 medical professionals attended the CME. Eminent team of faculty handled different sessions. Hands - on fundus examination and interactive sessions were arranged as part of the programme.

Update in Ophthalmology for Postgraduates Aravind – Pondicherry, October 25 – 29

The update focused on a wide range of discussions on various eye disorders, their pathological and microbiological mechanisms. A total of 30 delegates attended the CME. Eminent faculty members from various institutions handled the sessions. A mock examination and Objective Structured Clinical Examination (OSCE) were also conducted.



Dr. Dheeraj Kewlani with the participants at the CME on Update in ophthalmology, Aravind-Tirunelveli

Neuro Ophthalmology Update 2010

Aravind – Pondicherry, October 30 – 31

A wide variety of topics discussed during the CME focused on evaluation of patients with oculomotor cranial nerve palsy, pupillary abnormalities, Optic neuritis management and disc edema management and covered different radio imaging techniques. A total of 280 delegates attended the programme. Dr. Neil Miller, Prof. of Neuro ophthalmology, Wilmer Eye Institute, Baltimore, USA, Dr. Jayakumar, neurologist, JK Institute of Neurology, Madurai, Dr. Palani, neurologist, Chennai, Dr. K.G. Srinivasan, radiologist, KGS Advanced Scan Centre, Madurai, Dr. Santhosh Joseph, interventional neuro radiologist, Sri Ramachandra Medical College,

Participants of the 21st Update in ophthalmology for postgraduates with Dr. Venkatesh at Aravind-Pondicherry





Dr. Neil Miller lighting the lamp to inaugurate the Neuro ophthalmology Update 2010 at Aravind-Pondicherry



Dr. Vijayalakshmi with participants at the paediatric ophthalmology symposium

Chennai were the experts who handled the sessions apart from Aravind faculty.

PHACOEXCEL

Aravind – Coimbatore, November 19 – 21

The three - day conference on Phacoemulsification aimed at the twin objectives of reinforcing the basics of cataract surgery and to offer a forum for the experienced surgeons to interact with peers. A total of 153 participants from Tamilnadu, Kerala, Andhra Pradesh, Karnataka and trainees from Philippines, China, Argentina, Zambia and Albania attended the conference. Eminent faculty who joined alongside the Aravind team included, Dr. Ronald Yeoh from Singapore, Dr. Charith Fonseka from Sri Lanka, Dr. Sriganesh from Bangalore and Dr. Purendra Bhasin from Gwalior.

Symposium on Prevention of Blindness in Neonates, Infants and Children

Aravind – Madurai, December 3

This one day symposium was organised by the paediatric department in association with Madurai Obstetrics and Gynecological Society. It focused primarily on the role of obstetricians and gynecologists in early recognition of eye problem in children.

OPTOCON

Aravind – Coimbatore, December 4 – 5

The conference mainly intended for optometrists, post graduates and practitioners in ophthalmology aimed to refresh the participants on the essentials of optometry. Around 75 participants attended the CME.

PHACOEXCEL at Aravind-Coimbatore





Cornea Connect 2011 at Aravind-Madurai

Electroretinography (ERG) Workshop

Aravind – Coimbatore, December 13 – 15

Aravind's Retina department at Coimbatore organised an Electroretinography (ERG) Workshop in which 18 participants from ophthalmic institutes across India participated. Dr. Eric Sutter, President and Clinical Scientist - EDI Inc. Redwood City, San Francisco, USA was the chief instructor.

CME on Childhood Eye Disorders for Private Practitioners

Aravind – Madurai, December 30

Orbit and Oculoplasty department conducted a half day CME for the medical officers of the primary health centres of Madurai district. The CME aimed at increasing their awareness on retinoblastoma and its management. A total of 44 delegates participated and the discussions included retinoblastoma manifestations and treatment.

Cornea Connect 2011

Aravind – Madurai, January 8 – 9

The Cornea department of Aravind – Madurai organised an international symposium on corneal disorders graced by ten renowned and eminent international faculty members in addition to the Aravind team. These global figures included Dr. Jack Whitcher, Dr. Tom Lietman, Dr. Jeremy Keenan from Proctor Foundation, San Francisco, USA, Dr. Antony Aldave, UCLA Laser Refractive Centre, Jules Stein Eye Institute, Los Angeles, USA, Dr. Sudeep Pramanik, Dr. Edwin Chen, Spectrum Eye Physicians, San Jose, CA, Dr. Roberto Pineda, Mass

Eye and Ear Infirmary, USA, Dr. John Dart, Moorfields Eye Hospital, London, Dr. Maghizh Anandan, Nuffield Health Derby Hospital, London and Dr. Sathish Srinivasan, Ayr Hospital, Scotland, UK. Around 200 participants attended the symposium. The symposium discussed on current trends in the diagnostic and treatment procedures in the field of corneal diseases.

CME on Molecular Diagnosis - Polymerase chain reaction

Aravind – Tirunelveli, February 12 – 13

The field of Molecular biology and Microbiology has undergone revolutionary changes and the main purpose of the CME was to familiarise the participants with these changes and update their knowledge. Renowned and experienced faculty in the field of molecular biology and microbiology discussed the recent advances and developments at length. Experts from various states of the country, postgraduates and students from various colleges attended the CME.

ARAVIND STAFF IN PREMIER EDUCATIONAL FORA

Numerous Aravind staff members hold significant positions in national and international educational councils and fora. In these capacities, they attend various high-level policy and strategic planning meetings both within India and abroad.

Dr. N. Venkatesh Prajna, advisory council member – ICO attended the marking / question setting and advanced examination meeting at the International Council of Ophthalmology, London from May 11 - 17.

MAJOR CONFERENCES ATTENDED BY ARAVIND STAFF ELSEWHERE

Aravind's large patient base affords its doctors considerable experience dealing with both complex as well as routine disorders. As such, Aravind ophthalmologists are both highly competent, and highly regarded, and are often invited to important conferences to share their experiences and observations. Participation in these conferences also gives Aravind staff an opportunity to gain in depth information about the latest developments in diagnosis and treatment modalities.

In the year ending March 2011, Aravind doctors made over forty presentations at the Tamil Nadu Ophthalmic Association Conference (TNOA), Salem and over 50 presentations at the All India Ophthalmological Society Conference (AIOS), Ahmedabad. The staff also made their mark at the various international fora and clinical society meetings as chief instructors for sessions and also by performing live surgeries at instructional courses.

Listed below are the main conferences attended by the staff during the year ending March 2011:

World Cornea Congress

Boston, USA, April 7 – 9

DR. K. THIRUVENKADAKRISHNAN

- Poster Presentation: *Unusual case series of postoperative endophthalmitis due to Mycobacterium Tuberculosis*

He also participated as chief instructor for the course on *Manual SICS*.

American Society of Cataract and Refractive Surgery

Boston, USA, April 9 – 13

DR. R. VENKATESH

- *Safe and effective technique to tackle lens induced glaucoma in developing world* (Best Video Award)

DR. HARIPRIYA ARAVIND

- *New techniques in iris fixation of rigid IOLs* (Best Video Award)

DR. K. THIRUVENKATAKRISHNAN

- Poster presentation: *Dematiaceous versus filamentous fungal keratitis at a tertiary eye care center in south India: Incidence and outcomes*

Association for Research in Vision and Ophthalmology

Florida, USA, May 2 – 6

DR. P. SUNDARESAN

- *Spectrum of candidate genes mutation associated with Indian familial oculocutaneous Albinism patients*

P. MURUGESWARI

- *Angiogenesis induced by proliferative diabetic retinopathy and Eales' disease vitreous is mediated by a common pro-inflammatory mechanism*

B. HEMADEVI

- *Protein profile of autosomal recessive congenital hereditary endothelial dystrophy (CHED2) and Fuchs endothelial corneal dystrophy (FECD)*

S. ANANTHI

- *Proteomic analysis of tear and cornea in patients with fungal keratitis*

M. VALARNILA

- *Evaluation of haptoglobin and its isoforms as plasma/serum biomarker for diabetic retinopathy*

R. SIVA GANESHA KARTHIKEYAN

- *Innate immunity in Aspergillus and Fusarium keratitis in Tamilnadu, India*

ASHWINI SHANKER

- *EPHA2 polymorphisms and age related cataract in India- Findings from the INDEYE Genetics study*

Drug Trial Meeting

Frankfurt, Germany, May 21 – 22

Dr. S.R. Rathinam, Dr. Manohar Babu and Dr. V. R. Saravanan attended investigators meet for drug trial in Uveitis named *Interleukin antagonist in treatment of posterior uveitis* at Frankfurt, Germany.

World Ophthalmology Congress (WOC)

Berlin, Germany, June 2 – 11

DR. N. VENKATESH PRAJNA

- *Challenges and solutions from India*
- *The need for and approach to teaching manual cataract surgery*

DR. V. NARENDRAN

- *Risk factors and screening of retinopathy of prematurity*

He was also the chief instructor for the course on *Current trends in management of ROP*.

DR. PARAG .K. SHAH

- *Pathogenesis and classification of retinopathy of prematurity*

Ms. Valarnila, Ms. Ashwini Shanker, Ms. Murugeswari, Dr. Sundaresan, Mr. Siva Ganesha Karthikeyan, Ms. Ananthi, and Ms. Hemadevi at ARVO





N. Vishnu Prasad, Dr. Balakrishnan, Mr. Thulasiraj,
Dr. Namperumalsamy, Dr. Vijayalakshmi at Berlin, Germany

DR. KALPANA NARENDRA

- Rehabilitation of Retinopathy of Prematurity

DR. RODNEY J MORRIS

- Tele-ophthalmology as a screening tool for diabetic retinopathy in rural population

Poster presentation:

- Anatomical and visual outcome following posterior segment intra ocular foreign body removal

DR. P. NAMPERUMALSAMY

- The Aravind telemedicine system for detecting and treating DR

He also chaired the session on *New challenges to Vision 2020: Glaucoma and Diabetic Retinopathy.*

DR. P. VIJAYALAKSHMI

- Optimising the visual outcome in paediatric cataract surgery - Clinical aspects
- Paediatric infectious eye diseases - prevention and management

MR. R.D. THULASIRAJ

- Role of large NGOs
- Neglected areas in research

He also chaired the session on *Changing realities in eye care.*

Visit to Chittagong Eye Infirmary and Training Centre (CEITC)

Chittagong, Bangladesh, June 15 – 18

Dr. HariPriya Aravind formally inaugurated the phaco training centre at CEITC, Chittagong. She worked with some of their phaco surgeons and performed live surgery as part of teaching. She gave lectures on phacodynamics and recent advancements in phaco technology.

Intraocular Implant and Refractive Society of India

Chennai, July 10 – 11

DR. HARIPRIYA ARAVIND

- Iris Fixation of rigid IOLs
- Travails of a surgeon- Cionni ring in Spherophakia

DR. R. VENKATESH

- Laser Assisted Deep Sclerectomy



Dr. HariPriya performing live surgery at Chittagong Eye Infirmary & Training Complex, Bangladesh

Paediatric Ophthalmology Symposium

Salalah, Oman, July 19 – 25

DR. P. VIJAYALAKSHMI

- Dissociated vertical deviation
- Basics of strabismus surgery
- Optimising visual outcome in childhood cataract
- Visual acuity assessment in children

DR. M. SRINIVASAN

- Infective keratitis
- Paediatric keratoplasty
- Secondary bacterial keratitis

ICMR Registry Meetings

New Delhi, July 27

The Indian Council of Medical Research has instituted a programme to develop a national retinoblastoma registry where retinoblastoma cases from various centers will be systematically recorded. Dr. P.M. Aravind attended a training programme in this regard at New Delhi on July 27. Along with Dr. Usha Kim, he attended the Principal Investigators (PI) meeting for the same on November 24.

Dr. Vijayalakshmi and Dr. Srinivasan at the symposium at Salalah, Oman





Dr. Venkatesh at African Glaucoma Summit, Accra, Ghana

19th Annual Scientific Session of the College of Ophthalmologists of Srilanka

Colombo, Sri Lanka, August 2 – 4

DR. KALPANA NARENDRA

- Challenges in the paediatric cataract surgery
- Muscle transposition in Strabismus Surgery
- Recent trends in the management of Amblyopia

African Glaucoma Summit

Accra, Ghana, August 6 – 7

Dr. R. Venkatesh participated in the African Glaucoma Summit organised by World Glaucoma Association and contributed to the following panel discussions:

- How to enhance glaucoma management in African hospitals?
- How to enhance awareness of glaucoma in public, government, and among health care professionals?

Asia Cornea Society Infectious Keratitis Study (ACSIKS) Investigators Meeting

Singapore National Eye Centre, Singapore, August 7

Dr. N. Venkatesh Prajna participated in the ACSIKS Investigators Meeting held at Singapore National Eye Centre.

Prof. Srinivasan and Dr. Balakrishnan at the Global forum on medical devices, Bangkok, Thailand



ASRS (American Society of Retina Specialists) Conference

Vancouver, Canada, August 24 – 28

Dr. R. Kim and his team consisting of Dr. Naresh Babu, Dr. Rajiv, Mr. Muneeshwaran, Mr. Palanikumar and Mr. Raj Arjunan won the Rhett Buckler Award for the best video screened at ASRS film festival.

Euretina 2010

Paris, France, September 2 – 5

DR. RODNEY J. MORRIS

- Anti VEGF treatment for retinal vascular disorders

From September 6 - 15, he visited Moorfields Eye Hospital, London, United Kingdom for an observership on Electro Retino Gram (ERG) under Dr. Graham Holder.

Global Forum on Medical Devices

Bangkok, Thailand, September 9 – 11

Prof. V. Srinivasan and Dr. P. Balakrishnan attended the First Global Forum on Medical Devices organised by World Health Organization. Prof. Srinivasan presented a poster on the Instruments Maintenance Courses conducted at Aravind hospital. Dr. P. Balakrishnan participated in the discussions related to affordability and local production of medical devices.

International Strabismological Association (ISA) conference

Istanbul, Turkey, September 11 – 26

Dr. Shashikant Shetty participated in the ISA meeting held at Istanbul and also underwent observation training under Dr. Birsen Gokyigit at Dr. R.N. Belger Eye Institute, Istanbul from September 13 – 22.

The 25th APAO congress – A Joint Meeting of APAO/AAO

Held in conjunction with the 15th congress of the Chinese Ophthalmological Society

Beijing, China, September 15 – 18

DR. P. SUNDARESAN,

- Molecular genetics of ocular anomalies in Indian population

Dr. Usha Kim, Dr. P.M. Aravind, Dr. Ravindran with some of the participants of APAO-AAO Congress, Beijing, China



He visited Beijing Genome Institute (BGI) at Shenzhen and Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong.

DR. R. KIM

- How to set up CME programs in developing countries?
- E-Grand Rounds in Asia

DR. R.D. RAVINDRAN

- Rock hard lens – Phaco vs ECCE?

He chaired the scientific programme on *Manual Small Incision cataract surgery* and participated in the panel discussion on *Rock hard cataract*.

Dr. V. Narendran, Dr. Thomas C. Lee, Dr. Mahesh P. Shanmugam, Dr. Parag K. Shah and Dr. V.R. Saravanan participated in the instruction courses on *Retinopathy of prematurity and paediatric retinal disorders*.

Dr. Usha Kim was the senior instructor for the instruction course on *Lid reconstruction: An overview*.

DR. P.M. ARAVIND

- Poster presentation: *Hemodynamic response to routine phacoemulsification among normal healthy ophthalmic surgeons during high volume cataract surgery*

He was also the senior instructor for the following courses

- *The ophthalmologist's role in managing facial palsy*
- *High volume, high quality cost-effective surgery for the developing world*

DR. KALPANA NARENDRAN

- *Double elevator palsy: How to tackle?*
 - *Management of paediatric cataract in normal and subluxated lens*
- She was also the chair for the following instruction courses
- *Management of vertical and restrictive strabismus*
 - *Paediatric cataract- An approach to effective surgical management including difficult operative situations*
 - *Visual assessment in children and effective amblyopia management- Issues and recent advances*

Dr. Balakrishnan, Dr. Shivakumar, Mr. Venketasa Kannan, Dr. Naresh Babu, Dr. Rathinam, Dr. Haripriya and Dr. Kim at AAO, Chicago, USA



Dr. Dhananjay Shukla at St. Eriks Hospital in Stockholm, Sweden with the Director Prof Stefan Seregard and other ophthalmologists from India

DR. RAJESH PRABHU

- *Dissociated vertical deviation and its management*
- *Vision assessment in paediatric age group*

DR. RAMAKRISHNAN

- *Surgical options for oblique muscles*

DR. SANDRA C. GANESH

- *Controversies in paediatric cataract surgery and our approach*
- *To treat or not to treat- Tips on amblyopia management using case examples*

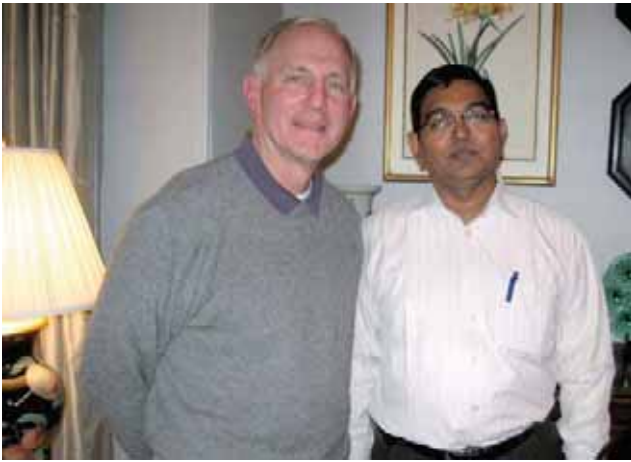
International Advanced Vitreoretinal Surgery Course

Stockholm, Sweden, September 18 – 19

DR. DHANANJAY SHUKLA

- *Macular hole in an RRD: To peel or not to peel in*
- *Optic disc cavitations: surgical caveats*





Dr. Shivakumar Chandrashekharan with Dr. Bradford Shingleton

40th Annual Meeting of Institute of Medicine of National Academies

Washington, USA, October 11

Dr. R. Kim was the invited speaker and also participated as a panelist in the panel discussion on *Innovative Designs for Providing Health Care: Systems Approaches*.

Annual meeting of the American Academy of Ophthalmology

Chicago, USA, October 16 – 19

Dr. Haripriya Aravind performed live surgery, *-2.2 mm phaco with Aspheric implant*. She was also the faculty at the skill transfer workshop on *SICS and ECCE*.

Dr. Shivakumar Chandrashekharan participated as instructor at the skills transfer course on *Extracapsular cataract extraction: Non-phacoemulsification large and small-Incision approach* and also attended various instruction courses. He also held discussions with prominent cataract surgeons - Dr. Bradford Shingleton (Ophthalmic Consultants of Boston), Dr. David Lubeck (Arbor Centers for Eye Care, Chicago) and Dr. David Chang (San Francisco) and upgraded his skills.

Dr. S.R. Rathinam participated in the Panel discussion on *Filling the gap: Upcoming potential treatments for Uveitis and ocular inflammatory diseases*.

DR. NARESH BABU

- *Enhancing outcomes of Aravind – Focus on compliance & Clinical Practice*

Uveitis Society Meet

Chandigarh, October 30 – 31

DR. S.R. RATHINAM

- *Epidemiology of Uveitis in India*
- *Algorithm for managing a patient with granulomatous anterior uveitis*
- *Leptospirosis and uveitis*

Fifth International Congress on Glaucoma Surgery

New Delhi, November 11 – 13

DR. R. RAMAKRISHNAN

- *High volume surgery for demanding regions*
- *Glaucoma surgery in the developing world*

He also chaired a plenary session and participated in the instruction course, *Trabeculectomy in challenging situations*.

DR. MOHIDEEN ABDUL KHADAR

- *Effect of Phacoemulsification with IOL implantation in eyes with cataract and pre-existing Trabeculectomy*

DR. R. VENKATESH

- *Laser assisted deep sclerectomy*
- *Glaucoma in pseudophakia*
- *Implant tube obstruction*

Speaker for the session on *Learn from the old hands* and also led the basic course session, *Step by Step: NPGS*.

DR. P. SATHYAN

- *SICS trabeculectomy in glaucoma management*
- *Surgical management of lens induced glaucoma*

DR. GEORGE V. PUTHURAN

- *What can I do before and during surgery to improve outcomes?*

DR. S.R. KRISHNADAS

- *Ahmad glaucoma valves: An Indian perspective*

DR. SHARMILA

- *Role of ologen implant in glaucoma filtering surgery*

DR. MANJU R. PILLAI

- *Subtenon anaesthesia in glaucoma surgery*

She won Best Poster Award for *Health literacy and barriers to follow-up after initial diagnosis of glaucoma in a south Indian population*.

GSI (Glaucoma Society of India) Meeting Scientific Programme

New Delhi, November 14

DR. R. RAMAKRISHNAN

- *Trabeculectomy: Why it is my surgery of choice?*

He participated in the panel discussion on *Surgical management of glaucoma*.

DR. MONA KHURANA

- *'Tele' Vision and Glaucoma: The role of vision centres in diagnosis and management of glaucoma - Paper presentation.*
- *Single site versus Two site Phacotrabeculectomy: A comparative study of efficacy complications and change in corneal topography (Rapid fire presentation).*

DR. MANJU R PILLAI

- *Bilateral and simultaneous angle closure glaucoma following spinal anaesthesia (case presentation).*

DR. R. VENKATESH

- *Implant tube obstruction*

DR. SHARMILA

- *Safer modification of subtenon's anaesthesia in Glaucoma filtering surgeries (video)*

6th International Conference of Telemedicine Society of India

Bhubaneswar, Orissa, November 14 – 16

DR. R. KIM

- *Creating access through telemedicine*



Dr. Abhishek, Dr. Thomas, Dr. Dhananjay Shukla and Dr. Anand Rajendran at the Asia Pacific Vitreo-Retinal Society Congress

5th Congress of the Asia Pacific Vitreo-Retinal Society

Bayfront Avenue, Singapore, November 18 – 20

DR. DHANANJAY SHUKLA

- Retinal vascular diseases – Macular Telangiectasia

DR. ANAND RAJENDRAN

- The Macular hole coefficient – An OCT predictor of macular hole closure (Best paper of the session)

DR. THOMAS CHACKO

- Plaque Brachytherapy using indigenous I-125 seeds for choroidal melanoma

DR. ABHISHEK KOTHARI

- OCT in peripheral degenerative lesions of retina

21st Annual Conference of Oculoplasty Association of India

Mumbai, November 19 – 21

DR. USHA KIM

- Tarsosfrontal Sling Simplified!

She performed a live surgery at the surgical workshop and also chaired the Video Assisted Skill Transfer session.

DR. SUBHASHIS MUKHERJEE, DR. SRIDEVI, DR. KAMALPREET LIKHARI, DR. USHA KIM

- Outcome of dacryocystorhinostomy in paediatric population in a tertiary eye care centre

DR. SHILPA TANEJA, DR. SUBHASHIS MUKHERJEE,

DR. P. M. ARAVIND, DR. KAMALPREET LIKHARI, DR. USHA KIM

- Profile of lacrimal gland masses in a tertiary care centre in south India:

DR. SUBHASHIS MUKHERJEE, DR. HARIKRISHNA, DR. USHA KIM

- A prospective study of idiopathic orbital inflammatory diseases in a tertiary eye care hospital

DR. ARAVIND P. MURUGESAN, DR. USHA KIM, DR. VIDYA

- Surgical outcome of orbital floor fracture repair

Annual Conference of Vitreo Retinal Society of India

Mysore, December 2 – 4

DR. PARAG K. SHAH

- Outcome of Group C/D Retinoblastoma after subtenon carboplatin I injections (free paper)

DR. V.R. SARAVANAN

- Micro incision vitrectomy surgery instrumentation
- Macular hole surgery in RRD and high myopia

Dr. R. Kim was the chairman for the scientific session named Dr. J.M. Pahwa Medal Award Session.

DR. NARESH BABU, DR. RAJIV SHAH, DR. ADITI PATWARDHAN

- Removal of an unusual giant intraocular foreign body
- FdNd YAG Laser Hyaloidotomy combined with pneumatic displacement: An alternative to vitrectomy for premacular haemorrhage

DR. ANAND RAJENDRAN

- The macular hole coefficient – A novel optical coherence tomographic predictive factor for macular hole closure
- Age – related degeneration or dystrophy – A diagnostic dilemma

DR. T.P. VIGNESH

- A case of IJT with serous retinal detachment and a RAP like lesion

DR. JAY KALLIATH

- Embolic septic retinitis masquerading as viral retinitis
- A comparative study of Trypan Blue and Brilliant Blue G in macular hole surgery

DR. POONAM LIMBAD

- Retinal imaging using Optical Coherence Tomography and quantitative analysis of foveal anatomy in nanophthalmic eyes

DR. PRAVEEN MURALY

- A comparative study of single session versus multiple session of panretinal photocoagulation in proliferative diabetic retinopathy
- Traumatic macular hole – observation versus surgical management: A comparative study

DR. UMESH CHANDRA BEHERA

- Epiretinal exudates in endophthalmitis: Drug vs disease

Asia – Pacific Joint Glaucoma Congress

Taipei, Taiwan, December 3 – 5

DR. R. RAMAKRISHNAN

- How to manage complications of Trabeculectomy

DR. P. SATHYAN

- Video presentation: Manual SICS Trabeculectomy

Dr. Ganesh Raman, Dr. Sathyan, Dr. Ramakrishnan and Dr. Sharmila at Asia-Pacific Joint Glaucoma Congress, Taipei, Taiwan



DR. GANESH RAMAN

- Poster presentation: *To study the accessibility and ability to use mobile phone for follow-up and medication reminders in patients attending glaucoma clinic*

DR. SHARMILA

- Poster presentation: *Trabeculectomy with subconjunctival biodegradable implant (Ologen) for the treatment of glaucoma*

Strabismus Society of India Conference

Jaipur, Rajasthan, December 17 – 19

DR. MURALIDHAR

- *Strabismus surgical dosage and outcomes*

DR. RENUKA RAJAGOPAL

- *Results of unilateral medial rectal recession in small and moderate angle esotropia.*
- *Lateral rectus deactivation in synergistic divergence (video)*

DR. ALOKA

- *Surgical outcome of Intermittent Exotropia*
- *Silicon expander in Brown syndrome (video)*

DR. KALPANA NARENDRAN AND DR. ARUNA

- *Current trends in treatment of Amblyopia*
- *Advanced strabismus techniques*
- *Duanes refraction syndrome type II with synergistic divergence (Case report)*

International Society for Genetic Eye Diseases and Retinoblastoma (ISGEDR) meeting

Narayana Nethralaya, Bengaluru, January 14 – 16

Dr. Usha Kim chaired the session on *advanced retinoblastoma, retinoblastoma chemotherapy and retinoblastoma pathology*

DR. P. SUNDARESAN

- *Genomic and proteomic analysis of corneal endothelial dystrophy*

Ms. C. Jayashree and Ms. P. Mohanapriya presented their works on *Leber's Hereditary Optic Neuropathy (LHON)* and *keratoconus* respectively.

Mr. Gowtham, Mr. Sushilkumar Dubey, Dr. Padma Sathyan, Dr. Jayahar Bharathi, Dr. Venkatesh Prajna, Dr. Krishnadas, Dr. Sathyan, Dr. Gowri Priya, Dr. Sundaresan, Ms. Renugadevi at Asia - ARVO meeting, Singapore

Annual Meeting of Asia - ARVO

Singapore, January 20 – 22

DR. S.R. KRISHNADAS

- *The burden of glaucoma in India*

DR. VENKATESH PRAJNA

- *Is Voriconazole better than Natamycin in treating fungal keratitis?*
- *Innate immunity in filamentary fungal keratitis*

DR. P. SUNDARESAN

- *Genome and proteome wide approach towards corneal endothelial dystrophies*

DR. C. GOWRI PRIYA

- *A specific marker for corneal epithelial stem cells and a simple method for their ex vivo expansion under Xenobiotic-free Condition*

MS. K. RENUGADEVI

- *Poster presentation: Molecular genetic analysis of Tyrosinase (TYR) Gene with oculocutaneous albinism (OCA) patients in Indian population*

MR. SUSHILKUMAR DUBEY

- *Poster presentation: Evaluation of Lysyl Oxidase-like 1 and Clusterin genes polymorphisms in south Indian population with pseudoexfoliation syndrome and pseudoexfoliation glaucoma*

MR. G. GOWTHAM

- *Poster presentation: Screening of Aldose Reductase Gene promoter region with Type-2 diabetic retinopathy in south Indian population*

DR. M. JAYAHAR BHARATHI

- *Topical Nepafenac in the treatment of center involving diabetic macular edema: Current perspectives on ocular mycoses in India*

DR. PARTHASARATHI SATHYAN

- *Predictors of and barriers associated with poor follow-up in patients with glaucoma in south India*



DR. PADMA SATHYAN

- Long term follow up of medical Vs surgical treatment in primary Glaucomas in a tertiary eye care centre in south India

DR. T.P. VIGNESH

- Poster presentation: Topical nepafenac in the treatment of center involving diabetic macular edema

Asia Pacific Academy of Ophthalmology Conference

Sydney, Australia, March 20 – 24

DR. P. NAMPERUMALSAMY

- Challenges in management of diabetic retinopathy programmes

DR. R.D. RAVINDRAN

- SICS: A model of cost effective early rehabilitation of cataract surgery
- Driving growth and development through comprehensive performance monitoring

DR. KOWSALYA

- Ophthalmic manifestations of intracranial tumours
- Traumatic optic neuropathy -A clinical spectrum

DR. KALPANA NARENDRAN

- Does pseudophakia protect glaucoma after congenital cataract surgery?

DR. V. NARENDRAN AND DR. RODNEY MORRIS

- Visual rehabilitation at the session on pearls and pitfalls in diagnosis and management of Retinopathy of Prematurity

DR. ANAND RAJENDRAN

- Poster presentations: Macular hole coefficient - A novel OCT predictive parameter for macular hole closure type
- Flexible dosing strategies with intravitreal bevacizumab for non-AMD CNVMs

DR. RODNEY J. MORRIS

- Teleophthalmology as a tool for DR Screening
- Strategies for DR awareness creation in the community

American Society of Cataract and Refractive Surgeons

San Diego, USA, March 25 – 29

DR. PRAVEEN SUBUDHI

- Combination of mobile van camps and vision centre for reaching the unreached in rural India.

DR. SHARMILA

- Safer modification of subtenon's anaesthesia in Glaucoma filtering surgeries (video)

She also attended the American Glaucoma Society meeting at Danapoint, California from March 2 - 6.

DR. R.VENKATESH

- Non-penetrating glaucoma surgery made simple by laser assisted deep sclerectomy (video)

He conducted instruction course on Small Incision Cataract Surgery - 5 minutes 15 \$ cure for cataract surgery.

American Association for Paediatric Ophthalmology and Strabismus

San Diego, USA, March 30 – April 3

DR. KALPANA NARENDRAN, DR. SANDRA, DR. RAJESH PRABHU,

DR. RAMAKRISHNAN, DR. AJAY

- Visual outcomes and complications following intraocular lens exchange in paediatric population.

ARTICLES PUBLISHED IN PEER REVIEWED JOURNALS

In the year ending March 2011, Aravind staff published 54 articles in various national and international peer reviewed journals.

INTERNATIONAL JOURNALS

ARCH OPHTHALMOL

VOL: 128 (6) 2010 JUN. P.672-678

PRAJNA, N VENKATESH; JEENA MASCARENHAS; THIRUVENGATA KRISHNAN; RAVINDRANATH REDDY, P; LALITHA, PRAJNA; SRINIVASAN, M; VAITILINGAM, C M; HONG, KEVIN C; LEE, LEE, SALENA M; MCLEOD, STEPHEN D; ZEGANS, MICHAEL E; PORCO, TRAVIS C; LIETMAN, THOMAS M ACHARYA, NISHA R

- Comparison of natamycin and voriconazole for the treatment of fungal keratitis

ASIAN J OPHTHALMOL

VOL: 11 2010 P.50-52

MOHIDEEN ABDUL KADER; RAMAKRISHNAN, R; CHANDRASHEKARAN

- Granulomatous anterior uveitis and follicular conjunctivitis due to brimonidine tartrate

BIOINFORMATION

5 (9) 2011 P.398-399

RANGACHARI K; DHIVYA M; ESWARI PANDARANAYAKA PJ;

PRASANTHI N; SUNDARESAN P; KRISHNADAS SR; KRISHNASWAMY S

- Glaucoma database

BMC MED GENET.

VOL: 11 (1) 2010 NOV. 10 P.158. [EPUB]

SUGANTHALAKSHMI, BALASUBBU; SUNDARESAN, P; ANAND

RAJENDRAN, KIM, R; GOVINDARAJAN G, NAMPERUMALSAMY, P;

HEJTMANCIK JF

- Association analysis of nine candidate gene polymorphisms in Indian patients with type 2 diabetic retinopathy

BR J OPHTHALMOL.

2010 AUG. 7 [EPUB]

RATHINAM, SIVAKUMAR R; KRISHNADAS, R; RAMAKRISHNAN, R;

THULASIRAJ, R D; TIELSCH, J M; KATZ, J; ROBIN, A L; KEMPEN, J

H; for the Aravind comprehensive eye survey research group

- Population-based prevalence of uveitis in Southern India

COMMUNITY EYE HEALTH

VOL: 23 (73) 2010 SEP. P.30-31

SRINIVASAN, V

- Training for equipment maintenance and repair

CURR OPIN OPHTHALMOL

VOL: 21 (6) 2010 NOV. P.478-484

RATHINAM, SIVAKUMAR R; ASHOK, K A

- *Ocular manifestations of systemic disease: ocular parasitosis*

CURR EYE RES.

VOL: 35 (11) NOV. 2010 P.953-960

SENTHILKUMARI, S; LALITHA, PRAJNA; PRAJNA, N VENKATESH; HARIPRIYA, ARAVIND; NIRMAL, J; GUPTA, P; VELPANDIAN, T

- *Single and multidose ocular kinetics and stability analysis of extemporaneous formulation of topical voriconazole in humans*

EXPERT REVIEW OPHTHAL

VOL: 5 (2) 2010 APR. P.113-114

CUNNINGHAM, EMMETT T; LONDON, NIKOLAS J S; RATHINAM, SIVAKUMAR R

- *Uveitis: a global view*

EXP EYE RES

2011 MAR 8 [EPUB]

ANANTHI, S; SANTHOSH, R S; NILA, M V; PRAJNA, N VENKATESH; LALITHA PRAJNA; DHARMALINGAM K

- *Comparative proteomics of human male and female tears by Two-dimensional electrophoresis*

EYE

VOL: 24 (5) 2010 MAY P.933-934

ANAND RAJENDRAN; GUPTA, S; BRAHADEESH, S; KIM, R

- *Intravitreal bevacizumab for choroidal neovascularization associated with a retinochoroidal coloboma*

2010 JUL. 30 [EPUB]

RATHINAM, SIVAKUMAR R; CUNNINGHAM JR., EMMETT T

- *Spontaneous hyphaema and acute ocular hypertension associated with severe lens-induced uveitis*

VOL: 24 (10) 2010 OCT. P.1621-1631

RATHINAM, SIVAKUMAR R; CUNNINGHAM JR., EMMETT T

- *Vitiligo iridis in patients with a history of smallpox infection*

VOL: 25 (4) 2011 APR. P.532-3

SHUKLA, DHANANJAY [LETTER]

- *Evolution and management of macular hole secondary to type 2 idiopathic macular telangiectasia*

INT OPHTHALMOL.

VOL: 31 (2) APR. 2011 P.141-3

SAINANI, MP; MURALIDHAR, R; PARTHIBAN, K; VIJAYALAKSHMI, P

- *Lipoid proteinosis of urbach and weithe: case report and a brief review of the literature*

INT OPHTHALMOL CLIN

VOL: 50 (2) 2010 SPRING P.1-17

LONDON, NIKOLAS J S; RATHINAM, SIVAKUMAR R; CUNNINGHAM, EMMETT T

- *The epidemiology of uveitis in developing countries*

VOL: 50 (2) 2010 SPRING P.99-111

RATHINAM, SIVAKUMAR R

- *Leprosy uveitis in the developing world*

VOL: 50 (2) 2010 SPRING P.201-218

LONDON, NIKOLAS J S; SHUKLA, DHANANJAY; HEIDEN, DAVID; RATHINAM, SIVAKUMAR R; AREVALO, J FERNANDO; CUNNINGHAM JR., EMMETT T

- *HIV/AIDS in the developing world*

VOL: 50 (2) 2010 SPRING P.219-228

RATHINAM, SIVAKUMAR R

- *Treating uveitis in the developing world setting*

VOL: 50 (2) 2010 SPRING P.113-124

SHUKLA, DHANANJAY; RATHINAM, SIVAKUMAR R AND CUNNINGHAM JR., EMMETT T

- *Leptospirosis uveitis in the developing world*

J AAPOS

VOL: 14 (4) 2010 AUG. P.345-348

ANAND KUMAR; JITENDRA JETHANI; SHASHIKANT SHETTY; VIJAYALAKSHMI, P

- *Bilateral persistent fetal vasculature: A study of 11 cases*

J BIOL CHEM

2010 DEC.

ZHANG, K HARADA, Y; WEI, X; SHUKLA, DHANANJAY; ANAND RAJENDRAN; TAWANSY, K; BEDELL, M; LIM, S; SHAW, P X; HE, X; YANG, Z

- *An essential role of the cysteine-rich domain of FZD4 in Norrin, WNT signaling and familial exudative vitreoretinopathy*

J CATARACT REFRACT SURG

VOL: 36 (11) 2010 NOV. P.1849-1854

VENKATESH, R; TAN, COLIN S H; SENGUPTA, SABAYASACHI; RAVINDRAN, R D; THIRUVENGADA KRISHNAN; CHANG, DAVID F

- *Phacoemulsification versus manual small-incision cataract surgery for white cataract*

J NUTR SCIENCE AND VITAMINOL

VOL: 56 (6) 2010 DEC.

VELPANDIAN, T ARORA, B; SENTHILKUMARI, S; RAVI, A K; GAYATHRI, C; AZAD, R; GHOSE, S

- *Regional variation in the levels of macular xanthophylls and carotenoids in dietary components: comparing north and south India*

JIMSA

VOL: 23 (3) 2010 JUL.-SEP. P. 192-194

THULASIRAJ, R D

- *Tackling Blindness in India: have we done enough?*

LANCET

VOL: 377 (9763) JAN. P. 413-428 2011

PATEL, V; CHATTERJI, S; CHISHOLM, D; EBRAHIM, S; GOPALAKRISHNA, G; MATHERS, C; MOHAN, V; PRABHAKARAN, D; RAVINDRAN, R D; REDDY, K S

- *Chronic diseases and injuries in India*

MICROBIOLOGY

2010 NOV. 16 [EPUB]

CADY, K C; WHITE, A S; HAMMOND, J H; ABENDROTH, M D; KARTHIKEYAN, RS, LALITHA, PRAJNA, ZEGANS, ME; O'TOOLE, GA
- *Prevalence, conservation and functional analysis of Yersinia and Escherichia CRISPR regions in clinical pseudomonas aeruginosa isolates*

MOL. VIS.

VOL: 16 2010 AUG. 9 P.1514-1524

RENUGADEVI, K; ASIM KUMAR SIL; VIJAYALAKSHMI, P; SUNDARESAN, P

- *Spectrum of candidate gene mutations associated with Indian familial oculocutaneous and ocular albinism*

VOL: 16 2010 P. 2891-2902

ESWARI PANDARANAYAKA, P J; PRASANTHI, N; KANNABIRAN, N; RANGACHARI, K; DHIVYA, M; KRISHNADAS, R; SUNDARESAN, P; KRISHNASWAMY, S

- *Polymorphisms in an intronic region of the myocilin gene associated with primary open-angle glaucoma - a possible role for alternate splicing*

NIGER J CLIN PRACT.

2011 JAN-MAR; 14 (1):70-73 769

AGHAJI AE, NATCHIAR G

- *Structured extracapsular cataract extraction-intraocular lens microsurgical training: Report of a trainee's experience*

OPHTHALMIC GENET.

VOL: 31 (4) 2010 DEC. P.196-199

SUNDARESAN, P; KUMAR, S M; THOMPSON, S; FINGERT, J H

- *Reduced frequency of known mutations in a cohort of LHON patients from India*

2011 MAR 15 [EPUB]

ARYA LK, KUMAR AB, SHETTY S, PERUMALSAMY V, SUNDARESAN P

- *Analysis of the SALL4 Gene in patients with duane retraction syndrome in a south Indian population*

OPHTHAL PLAST RECONSTR SURG

2010 JUN 17. [EPUB]

USHA, KIM R; AKASH, D SHAH; SHANTI, R; VIPUL ARORA

- *Primary T cell / histiocyte-rich large B-cell lymphoma of the orbit*

VOL: 26 (4) 2010 JUL.-AUG. P.291-293

USHA, KIM R; AKASH, D SHAH; VIPUL ARORA; URVASHI SOLANKI

- *Isolated optic nerve infiltration in systemic lymphoma-A case report and review of literature*

VOL: 26 (5) 2010 SEP.-OCT. P.315-22

USHA, KIM R, HADI KHAZAEI, STEWART, BILL W, AKASH, D SHAH

- *Spectrum of orbital disease in South India: An Aravind study of 6,328 consecutive patients*

OPHTHALMIC SURG LASERS IMAGING

VOL: 41 (3) 2010 MAY-JUN. P.337-341

SATHYAN, P; VENKATESH, R; MURALIKRISHNA, R; EONG, KAH-GUAN AU

- *Visual experience during phacoemulsification-trabeculectomy under peribulbar anesthesia*

OPHTHALMOLOGY

2010 AUG.

PRAVEEN VASHIST; BADRINATH TALWAR; MADHURJYA GOGOI; GIOVANNI MARAINI; MONICA CAMPARINI; RAVINDRAN, R D; MURTHY, GUDLAVALLETI V; FITZPATRICK, KATHRYN E; NEENA JOHN; USHA CHAKRAVARTHY; THULASIRAJ, R D; FLETCHER, ASTRID E

- *Prevalence of cataract in an older population in India: The India study of age-related eye disease*

RETINA

VOL: 30 (6) 2010 JUN. P.971-974

NARESH, KANNAN B; PRAVEEN MURALY AND KIM, R

- *Twenty-three-gauge two-port pars plana lensectomy for the management of ectopia lentis in children*

VOL: 30 (7) 2010 JUL.-AUG. P.1113-1121

MARTIN, T D; RATHINAM, SIVAKUMAR R; CUNNINGHAM JR., EMMETT T

- *Prevalence, clinical characteristics, and causes of vision loss in children with vogt-koyanagi-harada disease in South India*

2011 MAR. 17

PRAVEEN MURALY, POONAM LIMBAD, KARTHICK SRINIVASAN, KIM, R

- *Single session of pascal versus multiple sessions of conventional laser for panretinal photocoagulation in proliferative diabetic retinopathy: A comparative study*

RETINAL CASES & BRIEF REPORTS

VOL: 4 2010 P.332-335

SHUKLA, DHANANJAY; RAJKUMAR MAHESHWARI; BHARAT RAMCHANDANI; SANGHAMITRA KANUNGO

- *Purtscher-like retinopathy with serous retinal detachment in preeclampsia of pregnancy: Complications and management*

X:1-3, 2011

DHANANJAY SHUKLA, SHASHANK RAI GUPTA

- *Evolution and management of macular tractional detachment with a macular hole in the presence of nonperfused hemiretinal vein occlusion*

NATIONAL JOURNALS

INDIAN J OPHTHALMOL

VOL: 58 (4) 2010 JUL.-AUG. P.323-325

ANAND KUMAR; ANUPAM SAHU; SHASHIKANT SHETTY;
VIJAYALAKSHMI, P

- *Wildervanck syndrome associated with cleft palate and short stature*

VOL: 58 (4) 2010 JUL.-AUG. P.303

RAMAKRISHNAN, R; DEVENDRA MAHESHWARI; MOHIDEEN
ABDUL KADER; RITA SINGH; NEELAM PAWAR; JAYAHAR, M
BHARATHI

- *Visual prognosis, intraocular pressure control and complications in phacomorphic glaucoma following manual small incision cataract surgery*

VOL: 58 (4) 2010 JUL.-AUG. P.338

VIPUL ARORA; USHA, KIM R; SHASHIKANT SHETTY; AKASH, D SHAH

- *Atypical presentation of an unusual foreign body*

VOL: 58 (4) 2010 JUL.-AUG. P.275

KUMARAGURUPARI, R; PAMELA, C SIEVING; LALITHA, PRAJNA

- *A bibliometric study of publications by Indian ophthalmologists and vision researchers, 2001-06*

2010 SEP-OCT 58 (5) P. 421-423

PARAG, K SHAH; NARENDRAN, V; KALPANA, NARENDRAN

- *In vivo growth of retinoblastoma in a newborn infant*

VOL: 58 (6) NOV. - DEC. 2010 P.540-543

SENGUPTA, SABAYASACHI; RAVINDRANATH REDDY, P; GYATSHO, J;

RAVINDRAN, R D; THIRUVENGADAKRISHNAN; VIKRAM VAIDEE

- *Risk factors for intraocular penetration of caterpillar hair in ophthalmia nodosa: a retrospective analysis*

2011 JAN-FEB; 59 (1):49-51

PARAG, K SHAH; KALPANA, NARENDRAN; NARENDRAN, V;
RAMAKRISHNAN, M

- *Severe aseptic orbital cellulitis with subtenon carboplatin for intraocular retinoblastoma*

2011 JAN-FEB;59 (1):55-8

USHA, KIM R, VIPUL ARORA, AKASH, D SHAH, URVASHI SOLANKI

- *Clinical features and management of posttraumatic subperiosteal hematoma of the orbit*

2011 JAN-FEB;59 (1):73-4

PARAG, K SHAH, RODNEY MORRIS, J, NARENDRAN, V, KALPANA,
NARENDRAN

- *Visual acuity and electroretinography findings 3 ½ years after the first intravitreal injection of bevacizumab (Avastin) in aggressive posterior retinopathy of prematurity*

2011 JAN; 59 SUPPL: S118-22

RAMAKRISHNAN, R; KHURANA. M

- *Surgical management of glaucoma: an Indian perspective*

VOL: 51 (1) MAR.-APR. 2011 P.155-157

PARAG, K SHAH; NARENDRAN, V; KALPANA NARENDRAN

- *Large spot transpupillary thermotherapy: A quicker laser for treatment of high risk prethreshold retinopathy of prematurity - A randomised study*

VOL: 51 (1) MAR.-APR. 2011 P.162-164

NITIN R JAIN, JITENDRA JETHANI, KALPANA NARENDRAN, L KANTH

- *Synergistic convergence and split pons in horizontal gaze palsy and progressive scoliosis in two sisters*

INDIAN J PATHOL MICROBIOL

VOL: 53 (2) 2010 APR.-JUN. P.276-280

RAMAKRISHNAN, R; RAMESH, S; JAYAHAR, M BHARATHI;
AMUTHAN, M; VISWANATHAN, S

- *Comparative in-vitro efficacy of fluoroquinolones against Streptococcus pneumoniae recovered from bacterial keratitis as determined by E-test*

VOL: 53 (2) 2010 APR.-JUN. P.281-286

RAMAKRISHNAN, R; RAMESH, S; JAYAHAR, M BHARATHI;
AMUTHAN, M; VISWANATHAN, S

- *Prevalence of bacterial pathogens causing ocular infections in south India*



Lions Aravind Institute of Community Ophthalmology

Mr. Meenakshisundaram at the 16th ASEF University Conference at Lodz, Poland

The past year at LAICO was utilised to strengthen the foundation for its future work. Several proposals, seeking to increase the capacity building of eye hospitals located in different parts of the world, received grant funding. LAICO continued to share the Aravind model with a wide spectrum of visitors from eye care institutions, academic visitors, and from other health care settings through a range of workshops, projects and training programmes. To date, LAICO has engaged with 273 eye hospitals in India and other developing countries. Its structured capacity building process is geared toward sustainable organisational development.

Consulting and Capacity Building

Last year LAICO's consulting division ran capacity building programmes for 12 eye hospitals in India, Bangladesh, China, South Africa, Nigeria and Paraguay with support from IAPB Capacity Building Grant Fund. LAICO is identified by IAPB (the International Agency for the Prevention of Blindness) as one of nine resource centres in the world.

LAICO hosted the Global Sight Network Initiative Mentoring Programme from February 26 – 28 organised by Seva Foundation. This included members from the eight mentor institutes (also the Centres for Community Ophthalmology) engaged in IAPB Capacity Building



Mr. Colin Williams facilitating the workshop on Mentoring

Grant Fund (CBGF) programme. Over a two-year period these mentor institutes including LAICO are working with 35 hospitals from various countries and supporting them through a capacity building process. This particular workshop was designed to strengthen the impact of the mentoring and to create a clear documentation and reporting process for achieving results. Mr. Colin Williams and Vikki Osborne from Westcott Williams (previously W2) facilitated the meeting.

Along with the Eye Fund team, LAICO conducted quarterly performance assessments of the three Eye Fund loan beneficiary hospitals – He Eye Hospital, China, Eye Foundation in Lagos, Nigeria and Fundacion Vision in Paraguay.

LCIF approved a grant for enhancing eye care delivery through SF 1588 - Enhancing Eye Care Services at Lions Eye Hospitals in India project amongst 73 Lions Eye

Hospitals in India that have undergone Manpower Management Development Programme prior to 2007. This two-year project aims at helping the selected hospitals develop a roadmap that will take them from being cataract-centric hospitals to comprehensive eye care service centers.

As part of LAICO's consulting activities, needs assessment visits were made to around ten hospitals and three vision-building workshops were conducted. In connection with the IAPB capacity building programme, follow up visits were made to various Catholic hospitals in Nigeria to gauge progress. As part of the Leapfrog Fund technology transfer capacity building process, there was a close monitoring of the progress made by Fundacion Vision and Fundacion Paraguayan, Paraguay with regard to the implementation of strategic plans and the discussions revolved around strengthening leadership at strategic and operational level, pricing and outreach strategies, standardisation of protocols and processes etc.

LAICO has been closely associated with the Grameen Hospitals since November, 2005 and last year, from June 20 - 26 the Aravind team held discussions with the senior leadership team at Bogra and Barisal regarding future projects and planning.

Developing Eye Care Resource Centres

Shenyang, China, November 1 – 5

LAICO, supported by International Agency for Prevention of Blindness (IAPB) is under a mandate to assist two eye hospitals in becoming resource centres for their respective regions.

The hospitals that have been selected for this process are He Eye Hospital, Shenyang, China and Al -Noor Foundation, Cairo, Egypt. The LAICO team made an

Needs assessment visit to Eerste River Eye Hospital, South Africa





Mr. R.D. Thulasiraj, Dr. Manoranjan Das, and Ms. KM Sasipriya at He Eye Hospital, Shenyang, China

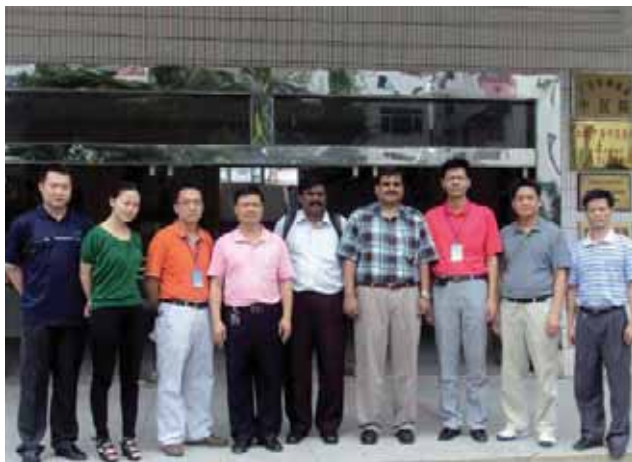
assessment visit to He Eye Hospital, Shenyang, China, in order to better understand how well the hospital is poised to strengthen eye care services for the country. LAICO will soon make a similar visit to the Al-Noor Foundation.

Onsite support

LAICO offers onsite support to other eye hospitals on request. Its consulting services were extended to five county hospitals and two private hospitals in Guanzhou province, China during visits to these hospitals from June 21 - 28. Aravind staff members were invited as resource persons for the capacity building workshop conducted by Zhongshan Ophthalmic Center (ZOC), Guanzhou. This workshop included visits to three different county hospitals and handling a session on Sustainable Outreach Programmes.

LAICO posted an eye care management professional at Fundacion Vision, Asuncion, Paraguay for a period of three months from February to provide guidance and support in areas like pricing policy and implementation, streamlining of the Medical Records Department and

Dr. Thiruvengkatakrishnan and Mr. Suresh Kumar at Guanzhou, China



Mr. Sanil Joseph and Dr. M. Frederick in discussion with staff of Oudomxay Provincial Eye Unit, Lao PDR

making necessary updates to existing software for better management of the clinic.

The consultancy visit to Oudomxay Provincial Eye Unit, LAO PDR July 11 - 18 facilitated a participatory process to assess the Oudomxay provincial eye unit's potential as a regional resource center, identify the key areas that need to be addressed for it to be a more sustainable model, and outline a business model for it.

Aravind team facilitated a vision building workshop organised by Netra Niramay Niketan, West Bengal as part of Centres for Community Ophthalmology activity. The workshop was attended by participants from five hospitals in India and Bangladesh.

Programme Evaluation

The Evaluation of Pilot County Eye Care System Strengthening Project, Jiangxi Province, China was carried out during November 22 - 26, 2010. This involved assessing the effectiveness of the primary level and secondary level service delivery mechanism to provide affordable and sustainable eye care services to rural

Mr. Suresh Kumar during the facilitating visit to Netra Niramay Niketan, West Bengal





Mr. R. Meenakshi Sundaram during the evaluation visit at Jiangxi Province, China



Evidence Based Management Practices

populations. The project was supported by Fred Hollows Foundation, China. In Oman, during a December 11-15 visit, LAICO assessed the current state of the country's diabetic retinopathy programme and offered recommendations to strengthen it. This was carried out in consultation with the WHO office in Oman.

October Summit

The October Summit is an annual series of workshops and consultations held in honour of the birth anniversary of the Aravind Eye Care System's founder chairman, Dr. G. Venkataswamy. These events are held to discuss important issues related to eye care service delivery and to find innovative solutions through sharing experiences and mutual consultation.

Listed below are the workshops conducted under October Summit 2010:

Participants at the Workshop on Private Practice in Ophthalmology

Workshop for Global Blindness Prevention (supported by ICO and IAPB), September 27 – 29

The purpose of this workshop was to develop plans for the identification and implementation of research priorities for the next ten years. Thirty-four delegates from Australia, Austria, Brazil, China, Ethiopia, Ghana, India, Saudi Arabia, South Africa, Tanzania, UK, and USA participated.

Private Practice in Ophthalmology, October 2 – 3

The workshop aimed to bring together private practitioners to provide a platform for discussing various issues relating to private practice in eye care. A total of 37 participants attended.

Evidence Based Management Practices, October 4-5

The workshop was designed to enhance management practices in eye care institutions and to promote the





Dr. Kalpana Narendran at Tampere University, Finland

culture of evidence – based decision making. A total of 43 participants from India, Nepal, Cameroon, Uganda and Bangladesh benefitted from the workshop.

Workshop on Preferred Practices for Sustainable Primary Eye Care Services

April 8 – 9

The objective of the workshop held at LAICO was to study different models of primary eye care services (vision centres) and distil preferred practices. Representatives from eight implementing agencies of vision centres participated and presented their models. The representatives from INGOs and the eye hospitals interested in setting up such services also attended this workshop. The outcome of the two day workshop was the distillation of preferred practices in terms of comprehensiveness of the services provided, demand generation strategies, infrastructure planning, human resources, programme sustainability, financial viability

Management Training for Eye Care Programme Managers



and its impact on the base hospital for providing primary eye care services. These various best practices will be released as a manual.

LAICO Services Extend to Developed World

Aravind team assessed the current systems at Tampere University Hospital, Tampere, Finland and discussions were held to improve the operational efficiency leading to increased surgical volume. A surgical management team from Aravind will visit the hospital at a later date to demonstrate a process for clearing the backlog and help the Finnish team integrate the efficiency processes into their regular routine.

Teaching and Training

LAICO offers a total of nine long and short-term courses in eye hospital management as well as short-term skill development courses in the areas of instrument maintenance, community outreach and social marketing. Apart from these structured courses, various custom designed courses are also offered. Around 140 eye care professionals from 20 countries were trained through the different courses conducted during the last year. Details of these programmes are listed on page 26.

Eye Care Training Goes Online

Aravind Eye Care System launched Aurosiksha, an online eye care training platform on April 6, 2010. Leveraging Aravind's 30 years of experience in training eye care personnel, Aurosiksha seeks to provide world class continuing education for ophthalmic professionals through an e-learning portal. The courses offered include orientation to eye care, common eye conditions, refraction techniques, medical records management, counseling for Paediatric eye care, basics in care and maintenance of eye care instruments etc.



Lighting the lamp at Prism 2011

Training on Quality Assurance in Eye Hospitals

February 10 – 20

This ten day custom-designed course was organised with support from ORBIS-South East Asia. The participants consisted of a team of two ophthalmologists and a programme manager from Vietnam and an Ophthalmologist from Lao PDR.

Strengthening Eye Care Management

The sixth batch of Fellowship in Eye Hospital Management, consisting of six members joined Aravind Eye Care System on August 16. On completion of the structured training programme, they will be employed as managers at the different centres of the organisation or partner institutions.

PRISM 2011-National conference on hospital and healthcare management

February 19 – 20

PRISM-2011, the annual conference was organised by the fellows in Eye Hospital Management. Eminent resource persons from different parts of the country handled different sessions. The deliberations were organised

Mr. Poornachandran and Ms. Merlin Meena during the instruments maintenance course at Eritrea



in 4 modules focused on the latest developments in the field of healthcare and hospital management. Around 90 participants attended the conference.

Onsite Training

Apart from the courses and workshops conducted at the headquarters in Madurai, LAICO also conducted training programmes at other eye care centres on request. In the year ending March 2011, three such training programmes were conducted:

- Workshop on Eye Care Programme Management for the District Managers of the Eastern Cape Province, South Africa supported by Fred Hollows Foundation, South Africa from December 6 – 10
- Instruments Maintenance Courses
 - Eighteen ophthalmic technicians were trained at Asmara, and Keran, Eritrea, North Eastern Africa with support from Fred Hollows Foundation, Australia during March 22 – April 16.
 - A total of 24 technicians were trained at the courses organised by the ORBIS Flying Eye Hospital (FEH) at the University of Ilorin Teaching Hospital, Ilorin, Nigeria during February 28 – March 18.
- Workshop on Introduction to Biostatistics and STATA at African Vision Research Institute Durban, South Africa, August 16 – 20

Projects Development and Management

With the successful completion of the TIFAC-CORE in Diabetic Retinopathy, Aravind - WDF Diabetic Retinopathy Management projects and Vision Centre projects, the division is geared up for promoting the right approaches to project development with the main focus on paediatric eye care and low vision management, its implementation and evaluation.

The developments in the year ending March 2011 in the major current projects are discussed here:

Primary Eye Care through Vision Centres

Aravind has established 36 Vision Centres till date with support from

- Lavelle Fund, USA (20 Vision Centres in the service areas of Aravind Eye Hospital, Madurai, Tirunelveli, Coimbatore and Pondicherry)
- Standard Chartered Bank's Seeing is Believing Vision Centre project supported by International Agency for the Prevention of Blindness (10 vision centres in the service area of Aravind Eye Hospitals, Theni and Madurai)
- Friends of Aravind (two Vision Centres and proposed to establish one each in the service of Aravind Eye Hospitals, Tirunelveli and Coimbatore)



School screening camp - A2Z project at Madurai

ORBIS – Aravind Paediatric Ophthalmology Learning and Training Centre (POLTC)

The centre has been conducting long term fellowship for ophthalmologists and short term certificate courses for paediatric anaesthetists, mid-level ophthalmic personnel, instruments maintenance and community outreach workers. The three year project, ORBIS-POLTC II was concluded in December 2010, with a total of 119 candidates trained under it.

A2Z Child Blindness and Eye Health Project

This project was supported by USAID - A2Z Micronutrients and Child Blindness Project through Academy for Educational Development, USA. The project was concluded on February 28, 2011. The following are the main services rendered to the community during the project period:

- 1,224 school teachers were trained to screen preliminary vision of the students at schools.
- 248,371 students were screened by the teachers for refractive errors and other paediatric eye diseases
- 125 school screening camps were conducted covering 206 schools. 8,197 pairs of spectacles were distributed.
- 6,169 children were examined in 32 paediatric eye camps and 797 spectacles were distributed.
- Totally 725 children got support for cataract surgery, out of which 590 were provided with Acrysoft foldable lens.
- 1,375 newborn babies were screened for ROP and 100 laser procedures were performed at base hospital.
- 500 ROP posters were printed and distributed
- A documentary was developed for creating awareness on paediatric eye diseases.

Paediatric awareness exhibition conducted under Lavelle project at Aravind-Pondicherry



School teachers receiving training in vision screening at Aravind - Tirunelveli





Participants at workshop on research methodology

New Projects

Eye Care for a Million Children - Lavelle Paediatric Eye Care Project

(Strengthening Paediatric Services at Aravind Eye Hospitals, Tirunelveli and Pondicherry)

Lavelle Fund for the Blind, a US based organisation supports this project which is being implemented in the districts of Tirunelveli, Kanyakumari, Tuticorin, Cuddalore, Villupuram and Pondicherry State. The project goal is to build capacity and processes to effectively address the problem of visual impairment and blindness among children in the age group of 0 – 17 years in the service area of Aravind Eye Hospitals at Tirunelveli and Pondicherry. Aravind Eye Hospitals are proposed to reach one million children in the age group of 0 – 17 years starting from September 2010, through comprehensive eye screening and providing medical intervention. The major activities include awareness creation, eye screening for children including screening for ROP and providing support for sight restoring cataract surgeries, school teachers training programmes for screening children etc.

Research at LAICO

The primary objective of the Research Division at LAICO is to develop health systems and operational research in order to contribute to eye care service delivery globally. More concrete plans are being laid out to strengthen the research capacity at LAICO.

The major operations research studies undertaken by LAICO in the year ending March 2011 are:

- Investigating gender associations amongst the users of cataract surgical services in south India (funded by Seva Canada)
- A cluster randomised trial of spectacle uptake for Refractive Errors across Multiple Delivery Systems in South India (funded by Champalimaud Research Grant).

- Assessment of the prevalence and socioeconomic burden of near vision impairment caused by uncorrected presbyopia (funded by World Health Organization)
- HR practices that influence patient satisfaction and employee satisfaction (research study in part fulfillment of Ph.D at IIT Madras)

Major Meetings/Conferences Attended

Near Vision Impairment and Presbyopia Study Data Review, Analysis and Follow up Protocol Development Meeting

WHO, Geneva, Switzerland, April 27 – 29

Mr. R.D Thulasiraj as advisor and Mr. Ganesh Babu participated in the meeting to review the prevalence and socio-economic burden of near vision impairment and conduct comparative data analyses. The meeting also aimed to draft a longitudinal follow-up study protocol.

Mr. R.D. Thulasiraj participated in the Sixth Meeting of the ICO (International Council of Ophthalmology) Task Force on Uncorrected Refractive Errors held at Berlin, Germany on June 3.

He also attended the meeting on research inputs in school screening and the IAPB-HR Committee meeting.

16th Asia Europe Foundation (ASEF) University Conference on Public Health and Vulnerable Groups: Access to Quality Health Care Services

Lodz, Poland, June 29 – July 10

MR. R. MEENAKSHI SUNDARAM

- Nongovernmental initiatives towards public health

Vision 2020 Global Meeting

Geneva, Switzerland, October 12

Mr. R.D. Thulasiraj participated in the Vision 2020 global meeting convened by Department of Chronic Diseases and Health Promotion / Prevention of Blindness and Deafness, WHO. The purpose of the meeting was

Mr. Thulasiraj at Near vision impairment and presbyopia data review, analysis and follow up protocol meeting, Geneva





Mr. Thulasiraj at Connect 2010, Chennai

to take stock of Vision 2020's progress till date and to review the challenges and lessons learnt at global and regional levels.

Access Telemedicine Meeting

Organised by Access Health International, Hyderabad, October 26

Mr. R.D. Thulasiraj participated in the meeting where strategies - to improve access to information and capacity for efficient health care and to improve link between different sources of capital and health care providers - were developed.

Connect 2010

Organised by Confederation of Indian Industries (CII), Chennai, September 8 - 9

Mr. R.D. Thulasiraj participated in Connect 2010, organised to create a vision and strategy for the next ten years of the ICT sector.

Mr. R.D. Thulasiraj took part in the first Global Stakeholders' meeting organised at World Health Organisation, Geneva, Switzerland on September 14.

Mr. Thulasiraj attending the ICO board meeting at Berlin, Germany



National Conference on Quality in Health Care

Chennai, September 24 - 25

Ms. PREETHI PRADHAN

- Aravind Eye Hospital: A model in operational efficiency

Annual Meeting of IAPB (International Agency for Prevention of Blindness)

Mr. R.D. Thulasiraj participated in the board meeting at Geneva, Switzerland from October 10 - 14.

First Global Symposium on Health Systems Research

Montreux, Switzerland, November 16 - 19

Mr. R.D. Thulasiraj delivered a lecture on technological advances in eye health at the symposium.

Emerge 2010

Mr. R.D. Thulasiraj handled a session on improving access to health care at the event organised by Skoll Centre for Social Entrepreneurship at Oxford, UK from November 27 - 28.

Confluence 2010

Organised by IIM, Ahmedabad, November 26

Dr. P. Namperumalsamy was invited as a distinguished speaker for Confluence 2010 - annual business summit towards the theme Inspiring Innovations, Expanding Horizons.

Wavelength 2011 Leadership Workshop

London, United Kingdom, March 7

Ms. Preethi Pradhan, presented Aravind as an example of social innovation to a group of social innovators and leaders from corporates at the workshop.

Innovations in Health Care Management and Informatics

Kuala Lumpur, Malaysia, March 16 - 17

MR. R.D. THULASIRAJ

- Extending the health care network to underserved populations: Case studies from India

Ms. Preethi Pradhan at Leadership workshop wavelength 2011, London, UK





Mr. Thulasiraj with HRH Princess Alexandria and Ms. Caroline Harper, President of Sightsavers



Dr. Manohar Babu and Ms. Preethi Pradhan with the students at ICEH, London

Skoll World Forum on Social Entrepreneurship

University of Oxford, UK, March 30 – April 1, 2011

Mr. R.D. Thulasiraj participated in the Forum at the Saïd Business School, University of Oxford.

Other Events

Guest Lectures

- Mr. Sanil Joseph delivered a lecture on Core concepts in eye care management for the students of M.Sc - Community Eye Health at L.V Prasad Eye Institute, Hyderabad on April 13.
- Mr. R.D. Thulasiraj delivered a lecture to the students of Stanford Business School, San Francisco, USA in April.
- He handled a session for the students of M.Sc Community Eye Health at ICEH (International Centre for Eye Health), London on May 5.
- Mr. R.D. Thulasiraj delivered a guest lecture on Aravind's unique service model during the Lean symposium organised by Wipro GE Health care on July 21.
- Ms. Sasipriya K.M handled a discussion on the Harvard case study on Aravind for the students of Post Graduate Programme in Public Policy Management at Indian Institute of management – Bengaluru on July 31.
- Mr. K. Jeyaram Illiyaraja, biostatistician delivered a lecture on Applications of bio-statistical methods in medical research at Manonmaniam Sundharanar University, Tirunelveli on November 11.

- Dr. Manohar Babu and Ms. Preethi Pradhan handled the management module for the M.Sc Community Eye Health students at International Centre for Eye Health, London, UK from March 7 – 9.

Vision 2020 Workshop

New Delhi, May 13 – 14

Mr. R.D. Thulasiraj and Ms. Preethi Pradhan participated in the workshop on Creating an Actionable Advocacy Roadmap for Eye Health in India.

Sightsavers 60th Anniversary Celebrations

London, United Kingdom, June 23

Mr. R.D. Thulasiraj participated in the social gathering hosted by HRH Princess Alexandra at Buckingham Palace in commemoration of the 60th anniversary celebrations of SSI.

Third National Workshop on Application of Biostatistics in Nursing Research

Madurai, October 29

Miss T.B. Soubhya was invited as a resource person for the statistical package practical session at the Workshop conducted at Ultra Mission Hospital & Research Centre, Madurai.

LIBA Beacon '11

Loyola College, Chennai, February 5

Ms. Preethi Pradhan delivered a special address on the importance of social innovation and the contributions of Aravind Eye Care System at Loyola Institute of Business Administration (LIBA).



Aravind Eye Banks

Staff evaluating corneal button under the slit lamp

While there is a steady rise in the number of eyes donated each year, there is still a yawning gap between the need and availability. Aravind Eye Banks play a vital role in creating awareness about eye donation among the public, and every year there is a substantial increase in the number of eyes procured. In the year ending March 2011, the Aravind Eye Banks together collected over 4,300 eyes.

Eye Donation Awareness Programmes

Several eye donation awareness programmes and lectures were arranged for school / college students, hospital staff, primary health centres and self help groups. Ms. Hepsiba

Jawahar, Manager, RAIEB, addressed several gatherings on the importance of eye donation, process of eye collection, and enucleation. She also delivered a lecture on *Non Governmental Initiatives towards Public Health*.

Eye Donation Fortnight Celebrations

August 25 – September 8

The 25th national eye donation fortnight was observed at all Aravind Eye Hospitals with a variety of programmes intended to increase awareness among the public, regarding eye donation. Programmes included exhibitions, motivational talks, propaganda through notices, cinema theatres and local television and FM channels.

Rotary Aravind International Eye Bank – Madurai collected 84 eyes during the fortnight celebrations. At a combined function to mark the end of the 25th national eye donation fortnight and commencement of the second year of Dr. Kalaingar Kapitu Thittam, Mr. C. Kamaraj, District Collector, Madurai felicitated Aravind hospitals for the excellent service they are rendering in reducing corneal blindness. Parents of two young children whose eyes were donated were also felicitated by the Collector. Rotary and Lions members, and staff of Aravind Eye Care System participated in the function.

The staff of Aravind – Tirunelveli formed an awareness human chain and an awareness walk was conducted in the heart of the city. The need for strengthening the Hospital Cornea Retrieval Programme was stressed by Aravind – Coimbatore at an eye donation awareness programme organised by Ganga Hospital, Coimbatore. At Aravind – Pondicherry, around 350 persons pledged to donate their eyes. In order to honour the Lions / Rotary Clubs and the participant hospitals of Hospital Corneal Retrieval Programme (HCRP) which were instrumental in enhancing eye donation, a function was organised at the hospital auditorium. Around 150 voluntary organisations participated in the function. MJF Lion P. Kuppusamy, Lions Districts Governor 324 - A3, and Mr. B. Natarajan, Chief Regional Manager, Indian Overseas Bank, were the chief guests. Mementos were distributed to the participant clubs.

Strengthening Eye Collection Centres

The Seva Foundation project has proposed strengthening the existing eye collection centres in terms of infrastructure development and also setting up new eye collection centres in and around Madurai. Under this project new sets of instruments were distributed and thermacol boxes and other accessories were replaced in some collection centres.

Standard Operating Procedure (SOP)

During the international inspection for renewal of accreditation of RAIEB, Madurai in September 2009 by the IFETB (International Federation for Eye and Tissue Banking), the standard operating procedures were greatly emphasised by the accrediting body and the same were revised in January 2010.

EBAI (Eye Bank Association of India) National Accreditation

The EBAI in association with Sight life International, ORBIS international and Sightsavers, started the process of accreditation of member eye banks, across the country. Dr. M. Srinivasan, Past President-EBAI has been appointed chairman of the Board. Dr. Jeena Mascarenhas, cornea Consultant, Aravind - Madurai has been appointed on the team of assessors for accreditation.

Rotary Aravind International Eye Bank was inspected in September 2010 as a preliminary process for accreditation.



Mr. C. Kamaraj, District Collector, Madurai presenting certificate of appreciation to a donor family

Dr. Samar K. Basak, secretary, EBAI and Mr. Kamalesh Gadhge, technician, Elmex Eye Bank, Gujarat inspected the RAIEB. The medical director, eye bank manager and technicians were interviewed individually. The recommendations given by the team were reviewed and implemented. The second round of accreditation was held on February 11, 2011. Dr. Radhika Tandon, MD, National Eye Bank, RP Centre, New Delhi and Mr. Ashish Biswas, Technician, Prova Eye Bank were the assessors. Finally the RAIEB has been accredited for 2 years by the EBAI accreditation board on May 11, 2011.

New Eye Donation Centre

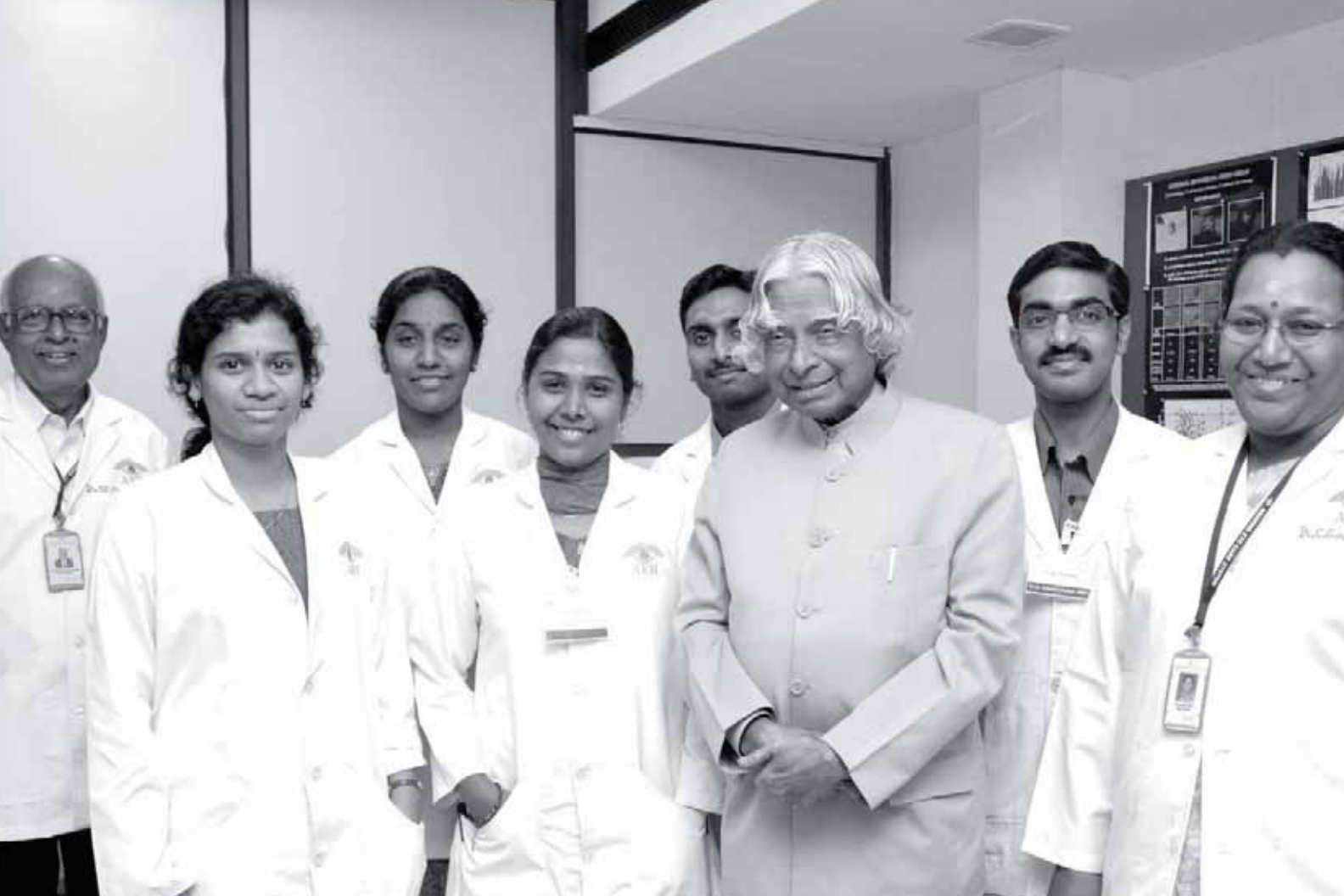
A new chapter of the Lions Club - Lions Dindigul Bright Vision has signed an MoU with Rotary Aravind International Eye Bank for setting up of a new eye donation centre.

Eye Bank Training

- Eye Bank Coordinator Training – A coordinator from Tirunelveli was trained in Eye Banking from June 7 - 12, 2010
- Physician Training – A government doctor from Patna was trained in eye banking and corneal transplantation from September 1 - October 30, 2010.
- Grief Counseling Training – Offered to a counsellor from M.P. Birla Eye Hospital, Kolkata.
- Eye Bank Technician Training – Offered to two technicians from M.P. Birla Eye Hospital, Kolkata from October 6 – November 5, 2010.

Eye Collection and Utility 2010 – 2011

Place	Eyes procured	Eyes utilised for surgery
Madurai	1855	723
Coimbatore	1430	574
Pondicherry	932	185
Tirunelveli	169	90
Total	4386	1572



Dr. G. Venkataswamy Eye Research Institute Aravind Medical Research Foundation

Dr. APJ. Abdul Kalam with Dr. Muthukkaruppan and other research staff at the Eye Research Institute

Research at Aravind contributes to Aravind's mission through providing evidence and evolving methods to translate existing evidence and knowledge into effective action. Basic and translational research is done under the aegis of Aravind Medical Research Foundation at the Dr. G. Venkataswamy Eye Research Institute, Clinical research in Aravind Eye Hospitals, Operations research in LAICO and Product development in Aurolab.

Basic Research

In the last year, the institute continued to make significant contributions in understanding the basic biological mechanisms of eye diseases such as diabetic retinopathy, age related cataract, age related macular degeneration, Leber's congenital amaurosis, albinism, Fuch's endothelial corneal dystrophy, fungal keratitis, leptospiral and trematode associated uveitis, primary



Dr. APJ. Abdul Kalam made a casual visit to the Institute on January 6 to the delight of all Aravind staff. After visiting the laboratories, he had interactions with the faculty and research scholars. He motivated the students and appreciated the recent achievements of Aravind faculty in the field of fungal keratitis, diabetic retinopathy and telemedicine. He also stressed the need to focus research on early detection of glaucoma.

open angle glaucoma, keratoconus, anophthalmia and microphthalmia. These eye diseases are examined in the areas of molecular genetics, microbiology, immunology, cell biology, pharmacology and proteomics. On the basis of the above research, the institute now has developed several applications to patients in Aravind ophthalmic clinics.

On-going Projects

- Molecular genetics of albinism, diabetic retinopathy, cataract, age-related macular degeneration, keratoconus, exfoliation glaucoma, leber congenital amaurosis,

Good Manufacturing Practice (GMP) facility



anophthalmia and microphthalmia in the Indian population

- Molecular insights and mechanism of infectious uveitis, anterior chamber granulomatous uveitis, leptospiral uveitis
- Characterisation of the host immune response during corneal infection with pathogenic fungi and bacteria, Type 3 secretory virulence proteins of pseudomonas aeruginosa causing keratitis
- Biology of human limbal epithelial stem cells with reference to molecular signature, factor relation to stemness, niche factors and xenobiotic-free culture conditions for *ex-vivo* expansion
- Proteomic profiling of serum / vitreous / aqueous humor/ tear in diabetic retinopathy, biomarkers for primary open angle glaucoma, host pathogen interaction in human aspergillus keratitis
- Pathogenesis of diabetic retinopathy and age related macular degeneration
- Exploratory study on ascorbate (vitamin C) and haptoglobin in cataract patients.

Translational Research

Corneal Epithelial Stem Cells

In the last year, the institute established a simple, cost effective method for *ex-vivo* expansion of autologous limbal epithelium and also developed a method to identify and quantify stem cells. The transplantation of stem cell rich cultured epithelium has been found to be an effective therapy to bring back vision in patients with unilateral stem cell deficiency due to chemical injury. In patients with bilateral LSCD, cultured autologous buccal epithelium is being used for corneal surface reconstruction. For the purpose of culturing these tissues, a class I,000 Good Manufacturing Practice (GMP) facility, with the required equipment and quality control have been established.

Genetic Counseling

Genetic counseling is needed to create awareness among public especially on the increased rate of autosomal

Molecular diagnostic methods



recessive diseases and also on the genetic aspects of illness including the inheritance pattern. It was started in November 2010 in the Paediatric clinic of Aravind Eye Hospital and is now offered for diseases like albinism, Leber congenital amaurosis, retinitis pigmentosa, congenital cataract, aniridia associated eye diseases, Leber hereditary optic neuropathy and familial exudative vitreoretinopathy.

The institute is in the process of creating a genetic counseling database and installation of Geographic Information System (GIS) which may help find the disease prevalence in a particular community.

Molecular Diagnostic Methods

Molecular diagnostic methods like Polymerase Chain Reaction (PCR) are more sensitive and faster than conventional culture methods. Nested PCR has been developed for the detection of viruses Cytomegalovirus (CMV), Herpes Simplex Virus (HSV), Varicella Zoster Virus (VZV), and bacteria (Mycobacterium Tuberculosis, Eubacteria, Propionibacterium acnes), Toxoplasma Gondii and this test is being used routinely in the diagnosis of ocular infections. During the last year, 426 tests were done by nested PCR on ocular fluids, from all Aravind centers. More recently, Real Time PCR which is a quantitative measure of the infectious load helps differentiate acute infection from latent / past infection and this test has been standardised for viruses, Mycobacterium Tuberculosis, Eubacteria, Leptospira and more importantly for new emerging infections like West Nile, Dengue, Chikungunya and Rickettsia.

DNA Based Diagnosis of Trematode Induced Uveitis

Sub conjunctival and anterior chamber granulomatous uveitis in children of South India is one of the newly recognised ocular diseases and it closely mimics the endemic disease tuberculosis. On histopathological analysis, a parasitic cause was suspected, but could not identify the exact etiology. DNA-based methods, like qRT-PCR and Molecular sequencing confirmed the parasitic etiology. In future this technique can help the clinician confirm the trematode ocular disease.

Ocular Drug Delivery

The transcorneal entry of topically applied drugs as eye drops is restricted due to the corneal barriers. Voriconazole, a newer anti-fungal agent had been proved for its efficacy in fungal keratitis. The Pharmacokinetic guided dosing regimen was elucidated for 1% topical voriconazole in patients undergoing cataract surgery. Based on multidose kinetics studies, the frequency of topical voriconazole instillation may be designed for “every 2 hr regimen” to maintain a therapeutic concentration for the successful therapy for fungal keratitis.

Unearthing new evidence about glaucoma



Aravind – Tirunelveli organised a special glaucoma screening camp for a family supposed to be one of the largest families with a strong glaucoma presence. A team led by Dr. Mohideen, Chief, Glaucoma Clinic, Tirunelveli organised the camp to screen the family members to understand the genetic predisposition and identify the gene which passes glaucoma and the potential members who might be at risk of getting the disease. At Aravind it happened to coincide with the visit of Dr. John Fingert, Scientist from the University of Iowa and co-discoverer of the first ever glaucoma gene, myocilin. A senior team of Glaucoma specialists – Dr. R. Ramakrishnan, Dr. S.R. Krishnadas and a team of researchers led by Senior Scientist, Dr. P. Sundaresan, Dr. G. Venkataswamy Eye Research Institute were put together besides a group of support staff for the camp conducted on November 18. 125 family members were present; blood samples are taken for genetic analysis to identify the candidate gene for primary open angle glaucoma.

DNA based diagnosis of trematode induced uveitis



Clinical Research

Glaucoma

- Health literacy and barriers to follow-up after initial diagnosis of glaucoma in a South Indian population
- Pharmacoeconomics of various brands of Timolol for patients with glaucoma or ocular hypertension.
- A multi-center, double-masked study of the safety and efficacy of Travoprost APS compared to TRAVATAN® in patients with open-angle glaucoma or ocular hypertension.
- A multicenter, open label, active control, parallel group randomised study to demonstrate non inferiority of Brinzolamide 1% ophthalmic suspension compared with Dorzox (Dorzolamide) 2% ophthalmic solution in treatment of elevated intra-ocular pressure in patients with primary open angle glaucoma or ocular hypertension
- Brinzolamide 1% ophthalmic solution for the treatment of primary open angle glaucoma and ocular hypertension.
- A Prospective non-randomised efficacy and safety clinical trial, 1 year study with a 1 year extension to evaluate the efficacy and safety of ADDI (Aurolab Artificial Drainage Implant) in controlling IOP in refractory glaucomas thereby preventing further damage to optic nerve and visual field loss.
- A phase III, randomised, active comparator-controlled, four-week, double –masked clinical trial to compare the efficacy and safety of preservative – free MK-2452 (0.0015%) and preservative- free Timolol Maleate (0.5%) in patients with open angle glaucoma or ocular hypertension in India.
- A multicenter, open-label study to evaluate the safety and efficacy of twice-daily 0.01% Bimatoprost / 0.15% Brimonidine / 0.5% Timolol ophthalmic solution (triple combination) in patients in India, who have glaucoma or ocular hypertension with elevated IOP, and are on twice-daily 0.2% Brimonidine / 0.5% Timolol ophthalmic solution (dual combination) therapy.
- Study protocol for glaucoma counseling and follow-up study.
- Assessing the safety and efficacy of changing to TRAVACOM® (Travoprost/Timolol fixed combination), as replacement therapy in patients with uncontrolled intraocular pressure across India.
- Indian Family Angle Closure Evaluation study (IFACE).
- Assessing safety and efficacy of laser assisted deep sclerectomy in eyes with open angle glaucoma by a non-randomised prospective study.

Cornea

- Steroids for Corneal Ulcers Trial (SCUT).
- A multi – center, Placebo-controlled, randomised, parallel-group dose-ranging study to assess the efficacy and safety of LX201 for prevention of corneal allograft rejection episodes or graft failure following penetrating keratoplasty with LX201 implantation in subjects who are at increased immunological risk.
- Mycotic Ulcer Treatment Trial (MUTT).
- Sjögren's International Collaborative Clinical Alliance (SICCA).

Cataract

- Role of wetlab training in donor eyes and simulator for learning capsulorhexis.
- Aravind cataract surgical complication study.
- Clinical evaluation of hydrophobic foldable intraocular lenses.
- Comparison of phacoemulsification Vs SICS: A randomised control trial.
- Outcomes of high volume phacoemulsification compared to standard volume phacoemulsification
- The natural history of artificial intraocular lenses in eyes with Exfoliation Syndrome.
- Posterior capsular opacification after implantation of square edge PMMA, round edge PMMA and hydrophobic acrylic intraocular lenses: A prospective, randomised comparative trial.

Significant Finding of ASCRS Grant Winner's Research

Dr. R. Venkatesh, a 2007 ASCRS Foundation research grant winner compared two leading cataract surgery techniques namely the more expensive phaco surgery and low cost manual small incision surgery in patients with mature cataracts. He has come out with findings in April 2010 that there is no significant difference in best corrected visual acuity between the two techniques. This finding is of immense benefit to the ophthalmic community in the developing world who cannot, owing to various challenges, provide phaco. This research study is unique as it was the first randomised study in this area.

Paediatric

- A2Z child blindness and eye health project.
- Effect of square edge PMMA IOL in preventing lens epithelial cell migration in paediatric cataract surgery: A randomised controlled trial.
- Lavelle paediatric project Eye Care for Million Children.

Uvea

- Protocol No.2301; A 24 week multicenter, randomised, double-masked, placebo controlled, dose-ranging phase III study of AIN 457 versus placebo for maintaining uveitis suppression when reducing systemic immunosuppression in patients with quiescent, non-infectious intermediate, posterior or panuveitis (ENDURE study).
- CAIN457C2303: A 24 week multicenter, randomised, double-masked, placebo controlled study to assess the difference in the rate of recurrent exacerbations in Behçet's patients with posterior or panuveitis treated with AIN457 vs placebo adjunctive to standard-of-care immunosuppressive therapy.
- A double – masked, placebo-controlled, multicentric, parallel group, dose ranging study to assess the efficacy and safety of LX211 as therapy in subjects with non-infectious intermediate, anterior and intermediate, posterior or pan-uveitis.
- First-line Antimetabolites as Steroid-sparing Treatment (FAST) uveitis pilot trial.

Orbit

- Oral Clonidine premedication in patients undergoing dacryocystorhinostomy under local anaesthesia
- Prospective clinical evaluation of dacryocystorhinostomy with lacrimal intubation.
- Clinical evaluation of silicone implant for primary or secondary volume rehabilitation of anophthalmic sockets.

Retina

- Comparison of the safety and efficacy of Fluocinolone Acetonide intravitreal inserts to sham injection in subjects with diabetic macular edema.
- A 12 month randomised pilot study to compare the efficacy and safety of PDT (standard fluence) plus intravitreal Lucentis vs. PDT (reduced fluence plus intravitreal Lucentis).
- A randomised, parallel group, multicentre, dose finding, comparison of the safety and efficacy of ASI-001A 0.5µG/day and ASI-001B 0.2µG/day Fluocinolone Acetonide Intravitreal inserts to sham injections in subjects with diabetic macular edema.
- Fluocinolone Acetonide for the treatment of diabetic macular edema.
- A safety and efficacy assessment of Vitreosolve® for ophthalmic intravitreal injection for inducing posterior vitreous detachment in non-proliferative diabetic retinopathy subjects.
- Investigation of efficacy and safety in wet AMD-view 2 study.
- A multicenter, open study assessing the efficacy and safety of Ranibizumab (intravitreal injections) as adjunctive therapy to laser in patients with visual impairment due to diabetic macular edema (DME).
- MONET STUDY: Protocol BO451001, titled: Phase II multicenter, prospective, randomised, age-related macular degeneration, comparator controlled, and dose ranging study evaluating PF-04523655 versus Ranibizumab in the treatment of subjects with choroidal neovascularisation (MONET study).
- Cardiovascular disease risk in retino-vascular disorders
- A genetic component to the Indeye study of cataract and age - related macular degeneration in India.
- A randomised, double masked, active controlled, phase 3 study of the efficacy, safety, and tolerability of repeated doses of intravitreal VEGF Trap-Eye in subjects either neovascular Age-related Macular Degeneration (AMD).
- A study of featureless retina in diabetic retinopathy: Clinical and angiographic features and therapeutic implications.
- A comparative analysis of pars plana vitrectomy in Rhegmatogenous retinal detachment with macular hole with or without internal limiting membrane peeling.
- A study of polypoidal choroidal vasculopathy: Incidence, angiographic and tomographic features.
- Atypical manifestations of posterior scleritis: Diagnosis and management.
- A retrospective study of anatomic and functional outcome of chronic macula-off rhegmatogenous retinal detachment
- A prospective study of Transpupillary Thermotherapy (TTT) for Chronic central Serous Chorioretinopathy (CSCR)
- Pigment Epithelial Detachment (PED) in Chronic Central Serous Retinopathy.
- Radial optic neurotomy for ischaemic central retinal vein occlusion: A case-control study.
- Laser photocoagulation for diabetic macular edema with serous retinal detachment.
- Optical Coherence Tomography for subhyaloid haemorrhage of various etiologies.
- A study of combined occlusion of central retinal artery and vein.
- Vitrectomy for macula-threatening tractional retinal detachment in diabetic retinopathy.
- Silicone oil tamponade in 23 gauge sutureless vitrectomy: long term anatomical and functional outcome.
- Yag hyaloidotomy with gas tamponade as a viable option for premacular haemorrhage in PDR against surgical intervention by pars plana vitrectomy.
- IVTA Vs macular PHC for diffuse diabetic macular edema-prospective study.
- Isolated intravitreal bevacizumab therapy for choroidal neovascular membranes of multiple aetiologies.
- Intravitreal bevacizumab as a preoperative adjuvant for diabetic macular tractional detachments with active new vessels.
- Intravitreal bevacizumab therapy for polypoidal choroidal vasculopathy.
- Retinochoroidal coloboma - a comparison of laser barrage photocoagulation versus natural history.
- Acute posterior multifocal placoid pigment epitheliopathy with serous retinal detachment: Clinical features and management.
- Evolution and management of macular tractional detachment with a macular hole in the presence of non-perfused hemiretinal vein occlusion.
- Management of rhegmatogenous retinal detachment with macular hole.
- Surgical management of optic nerve pits with macular schisis.
- Occult optic nerve pits with macular schisis.
- Use of "heavy BGG" dye for macular hole surgery.
- Surgery for macular hole secondary to macular telangiectasia.
- Adjuvant role of intravitreal corticosteroid in the surgical management of macular epimacular membrane or hole secondary to uveitis.
- The macular hole coefficient - A novel OCT based mathematical predictor for macular hole closure type.
- A randomised controlled clinical trial comparing panretinal photocoagulation with yellow laser (577nm) versus green laser (532nm) for proliferative diabetic retinopathy.

Aurolab Clinical Trials

- Posterior capsular opacification after implantation of square edge PMMA and acrysof intraocular lenses in paediatric cataract: Randomised controlled trial.
- Posterior capsular opacification after implantation of square edge PMMA, round edge PMMA and acrysof intraocular lenses: Randomised controlled study.
- Clinical evaluation of silicone implant for primary or secondary volume rehabilitation of anophthalmic sockets.



Participants of workshop on Stem Cells for Vision

- Randomised, active comparator-controlled, three months, open label clinical trial to compare the efficacy and safety of refrigeration-free latanoprost (0.005%) stored at refrigeration temperature in patients with open angle glaucoma or ocular hypertension.
- Clinical evaluation of a new cartridge for the implantation of foldable intraocular lenses.
- Evaluation of safety and efficacy of glaucoma shunt (Aurolab artificial drainage implant) in refractory glaucoma.
- Clinical evaluation of toric intraocular lens made by Aurolab.
- Clinical evaluation of corneal collagen cross linking with riboflavin and ultraviolet for keratoconus.
- Clinical assessment of AuroKPro.

Operations Research

- Investigating gender associations amongst the users of cataract surgical services in south India (funded by Seva Canada)
- A cluster randomised trial of spectacle uptake for refractive errors across multiple delivery systems in south India (funded by Champalimaud research grant)
- Assessment of the prevalence and socioeconomic burden of near vision impairment caused by uncorrected presbyopia (funded by World Health Organization)
- HR practices that influence patient satisfaction and employee satisfaction

Workshop / Conferences conducted

Workshop on "Stem Cells for Vision"

October 25 – 30, 2010

The workshop was conducted as part of 'October Summit', in honour of Dr. V, the Founder Chairman of Aravind Eye Care System. It was organised by Scientists

at the research institute in collaboration with the Cornea Clinic of Aravind Eye Hospital and sponsored by ICMR and DRDO, New Delhi. This 'hands on' training course is the first of its kind in India to teach a variety of modern laboratory techniques to show how stem cells could bring back vision to patients. This is the only method to bring vision to patients who became blind due to thermal or chemical injuries. Research students and young scientists from across the country had the opportunity to learn methods of identifying and growing patient's stem cells under specific culture conditions.

In addition to Aravind faculty, experts from LV Prasad Eye Institute, Hyderabad, Sankara Nethralaya, Chennai, Sri Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram, Invitrogen Bioservices India, Bangalore delivered lectures during the sessions. All the basic techniques and culture methods for *ex-vivo* expansion of corneal / buccal epithelial stem cells for human application were carried out using human cadaver globes.

Ph.D Awarded by Madurai Kamaraj University

October 2010

Ms. B. SUGANTHALAKSHMI

- Molecular genetics of diabetic retinopathy



Aurolab

Aurolab

Mr. Maheshwaran discussing the launch of Aurochart with the sales team at the AIOC stall, Ahmedabad

In keeping with the organisation's ethos of continuous innovation, Aurolab introduced a whole range of new products in the last year. With an efficient manufacturing system combined with uncompromising quality measures Aurolab has obtained various certifications and is now poised for a quantum jump in its international market share.

New Products

Voriconazole

August 2010

Aurolab's pharmaceutical division introduced an anti-fungal eye drop, the first of its kind in the world, and one

that has a broad spectrum of action. This product has been extremely well received by the ophthalmic community and many ophthalmologists have endorsed Voriconazole as their drug of choice to treat fungal keratitis.

Auroflex Square Edge

November 2010

Square edge design in intraocular lenses prevents posterior capsular opacification. Having experimented with the square edge design in an earlier high end hydrophilic foldable product named Auroflex EV that was well received, Aurolab consequently designed a process to manufacture it at scale and also introduced the feature



in its standard hydrophilic foldable product, Auroflex - a popular model in the market. Aurolab plans to phase out the previous model and focus on the square edge product for the benefit of more patients.

Flures

December 2010

Aurolab launched Flures, a fluorescein sodium dye at the Vitreo Retinal Society of India conference. This pyrogen and preservative-free product provides excellent contrast for diagnosis during Fundus Fluorescein Angiography.

Aurochart

January 2011

Launched during the AIOS conference at Ahmedabad, Aurochart is the first mass-market product from Aurolab's equipment division. With Aurochart this division is well positioned to create a wider customer base and establish credibility. Some of its unique features and carefully designed optotypes based on international standards give Aurochart an edge in the market. Within a very short period a large number of units have already been sold.

Auro KPro

January 2011

Designed along the lines of the Boston Keratoprosthesis with their permission, Auro KPro is a product that offers a ray of hope for patients with multiple corneal graft failure. It addresses both availability and affordability concerns by successfully manufacturing a complex keratoprosthesis in India. Though the usage of this product is yet to increase, Aurolab's introduction of the product at an affordable price enables many corneal surgeons to offer the service to their patients.

Aurosharp Round Stock Blades

January 2011

These blades made from round stainless steel wire are an addition to the existing range of surgical blades from Aurolab. The response has been favourable and a steady entry is underway in domestic and international markets.

Regulatory Activities

The regulatory department paved way for increased international marketing of Aurolab products with the successful registration of a selection of products in various countries. Absorbable sutures were registered in Philippines, Auroblue in Mexico, eye drops in Kenya and blades in Indonesia.

The annual ISO and CE certification audits were carried out successfully.

Human Resource Department Activities

Aurolab networks with the teachers of village schools to recruit higher secondary students as production staff once they graduate tenth standard. To strengthen the relationship with the teaching community, Aurolab conducted a “Teachers’ Get Together” for the first time. Heads and teachers from twenty-five schools attended this interactive program. The guests were taken on a tour to the various divisions of Aurolab.

Aurolab’s 18th anniversary was celebrated in February and graced by the presence of senior leaders of Aravind. Dr. P. Balakrishnan, Managing Director delivered a report on the activities and Mr. R.D. Sriram, Director of Operations shared Aurolab’s growth plans. Employee service awards were distributed.

Aurolab observed Mission Day on July 7 in commemoration of the Aravind Eye Care System’s Founder Chairman, Dr. G. Venkataswamy. Staff shared their powerful memories of working with Dr.V.

A week long training module conducted in December for the field staff across all cadres including sales and service engineers provided an opportunity for intensive learning and sharing of individual experiences. Key products were focused on with special attention to their technical, marketing, USP and competition analysis aspects.

Graduation Day was conducted for children of the staff in the crèche. Those eligible to join school in the ensuing academic year were awarded certificates.

IT Department Activities

Aurolab has gone live with the implementation of Microsoft Dynamics ERP (Enterprise Resource Planning).

Graduation day for kids in the creche



Dr. Balakrishnan addressing teachers at a get-together

The purchase, manufacturing, finished goods and accounting modules have been successfully implemented. The adoption of ERP software has resulted in uniformity of data and abolishes the need for multiple entries in different departments.

This initiative is expected to deliver even more benefits in the future by offering a system for better monitoring and control of costs, flexibility and accuracy in planning, maintaining optimum inventories etc. HR module and CRM module are also to be implemented thus integrating the entire organisation on a single platform.

Marketing Activities

Dealers Meet

After a gap of over a decade, Aurolab conducted Dealers Meet at Madurai on July 5th. Nearly 60 dealers from all over the country including long-term associates who partnered with Aurolab at its inception were present. Senior leaders of Aravind were present at the occasion. Special invitee for the day, Prof. D.V.R. Seshadri, IIM, Bangalore, in his inspiring address, stressed the need for a strong and amicable relationship between manufacturers and dealers, citing examples from companies like Tata Steels and The Caterpillar. Later the group was taken for a visit to Aurolab’s state-of-the-art manufacturing facility. The meet concluded with a two-day trip to Kodaikanal that included a mix of healthy discussions around the future along with fun events.

International Marketing

The International Marketing Department was successful in appointing distributors in Sri Lanka, Greece, Peru and Nepal. This will help Aurolab gain a foothold across more territories. Aurolab also completed the additional



Mr. Vishnu Prasad, Mr. Michael Price, Mr. Padmanabhan at ASCRS 2011, San Diego, USA



Mr. Sriram receives Certificate of Merit award for Aurolab stall at the AIOC, Ahmedabad

registration that is required to sustain and grow its market in Philippines, Kenya and Ethiopia. This has resulted in the increase of business volume in these regions. Aurolab has also won tenders from several other countries for supply of intraocular lenses and pharmaceutical products.

The International Marketing Division also expanded its workforce by 4 people to better market its presence and sustain its growth in the years to come. A strong focus has helped Aurolab grow its private label business by 50% compared to prior years.

Major Conferences Attended

Participation in various conferences, both national and international helps Aurolab establish new contacts worldwide thereby extending the reach of its products. Listed below are the major conferences attended by the staff during the year ending March 2011:

- 114th American Academy of Ophthalmology conference at Chicago, USA, October 16 – 19, 2010
- 28th European Society of Cataract and Refractive Surgeons conference at Paris, France, September 4 – 8, 2010
- American Society of Cataract and Refractive Surgery conference at Boston, USA, April 10 – 13
- 25th Asia Pacific Academy of Ophthalmology conference at Beijing, China, September 16 – 20, 2010
- 69th All India Ophthalmic conference at Ahmedabad, February 2 – 6, 2011
- 26th Asia Pasific Academy of Opthamology conference, Sydney, Australia, March 20 – 24, 2011
- American Society of Cataract and Refractive Surgery conference at San Diego, USA, March 26 – 29, 2011
- Dr. P. Balakrishnan, Managing Director was invited as the speaker at the Indian Medtech Summit organised by Stanford India Biodesign in Delhi in December 2010.
- Mr. R.D. Sriram was invited to IIM-Banglore and Ahmedabad to facilitate the case discussion on Aurolab's go-to-market strategy.

CENTRAL FUNCTIONS

Functions which are central to all Aravind facilities– Finance, IT and Systems, Communications, Human Resource Development – function from Madurai and are housed in the LAICO and hospital premises. Apart from these, Aravind is strongly backed by a full-fledged Biostatistics Department and a well equipped library and information centre.

Listed below are the major activities of the other central divisions during the year ending March 2011:

INFORMATION TECHNOLOGY AND SYSTEMS

Over the years, Aravind has leveraged information technology extensively in the effective delivery of eye care and in reaching out to the millions. During the year ending March 2011, the department has implemented IT solutions in new areas, upgraded several existing systems and provided software solutions to other organisations.

New installations

- Electronic Medical Recording (EMR) is implemented in all vision centres and is under trial run at Aravind-Madurai City Centre.
- A web based cataract surgical outcome benchmarking and monitoring tool was installed at Aravind – Madurai
- A community outreach system software is installed at Madurai to manage the various outreach programmes from planning to monitoring activities.
- A new Medical shop management system has been developed and replaced the existing software at Aravind-Madurai.

AuroRMIS

AuroRMIS is a web-based research management information system. It enables the user to submit project details, related documents and update the status. It captures the activities related to all the project studies.

IT Solutions to other Organisations

In the year ending March 2011, the department installed the Integrated Hospital Management System (IHMS) in seven hospitals, Opticals Management System software in two hospitals in Bangladesh and Community Outreach System software at CHEF International, Pakistan.

The IT team visited 17 user hospitals to assess their utilisation of system and train them further to enhance the software utilisation.

IHMS Users Meet

In order to understand the users' feedback on the utilisation of software and new requirements in terms of enhancements, training and support services, the department organised Users Meets. One such meet was conducted at BNSB Eye Hospital, Mymensing, Bangladesh in April 2010. There were 12 participants from different user hospitals. Another meet was conducted at LAICO in October in which 15 participants attended.

ARAVIND TELE-OPHTHALMOLOGY NETWORK

Developed mainly with the objective of benefitting the rural masses with better eye care, the Aravind Tele-ophthalmology Network (ATN) in vision centres has become a role model for replication in India and other developing countries. This innovative approach has helped Aravind overcome the issues of transportation and inadequate specialist availability. Aravind collaborates with various diabetes centres in the screening of diabetics through tele-consultation with the help of Aravind Diabetic Retinopathy Evaluation Software (ADRES). In the year ending March 2011, 656 such cases were evaluated.

ATN plays a major role in different educational interactions between all Aravind Eye Hospitals which include grand rounds, journal clubs, clinical meetings, post graduate classes and classes for mid level ophthalmic personnel and paramedics. Around 376 video conferencing sessions including international conferences were conducted during the last year.

Mr. Ganesh Babu assessing and demonstrating IHMS software at Khartoum, Sudan



ARAVIND COMMUNICATIONS

In the last year, the focus at Aravind Communications was on revamping. The mega eye care exhibitions ‘Kannae Nalamaa?’ planned to be held at all Aravind Eye Hospitals provided the pretext to rework the patient information posters for the various eye diseases and for eye donation awareness. Over seventy 2’ X 3’ posters were developed –updating the old ones with the help of the various department doctors, nurses and patient counselors-and used in the exhibitions, held first at Aravind-Madurai, and next at Aravind-Pondicherry and later at Aravind-Tirunelveli. Apart from these, over 50 scientific posters were developed for the staff attending national and international conferences. Supported by Sightsavers, the department is currently involved in developing a manual for planning tertiary eye care services and also in an outreach manual for developing nations in collaboration with Seva Foundation. The Aravind website developed and maintained in house was totally revamped during the year. The department takes care of the intranet system which is used as a powerful platform for information sharing and internal communication. The Aravind website was totally revamped with help and guidance from Mr. Mike Myers with a new appealing layout and added features.

The videography department made various instructional videos for the different departments in the last year. Four of the videos developed for presentation won awards at various conferences.

HUMAN RESOURCES

Last year saw the HR department organising various training programs and workshops to empower the employees thereby paving the way for their professional as well as personal development. With a view to identifying and applying best practices throughout the organisation, various operating models and strategies were created. The HR department’s primary focus was on working towards the theme of the year, “Employee empowerment”, by creating an enabling environment.

Employee Development Programmes

Skill Development and Training

CME on Prophylaxis of Post-operative Ocular Infections
Aravind – Tirunelveli, May 16

The CME for the mid level ophthalmic personnel focused on the different pre-operative procedures and infection preventive measures.

Training on Laser Assisted Deep Sclerectomy (LADS)
Aravind – Pondicherry, May 27 – 29

Prof. Ehud. I. Assia, Director, Department of Ophthalmology, Tel Aviv University, Israel and, Dr. Ami Eyal and Mr. Allon Bogin from Bio Light Life Sciences Investment Ltd., Israel visited Aravind, Pondicherry to train Aravind’s Glaucoma consultants on LADS (Laser Assisted Deep Sclerectomy). Consultants from Madurai, Tirunelveli, Coimbatore and Pondicherry received hands – on - training during the wet lab session.

Laser assisted deep sclerectomy (LADS) trainers with Aravind’s Glaucoma consultants





Drivers undergoing technical education

Training of Trainers

Aravind – Madurai, July 24 – 25

A workshop was conducted for the tutors, senior MLOPs, academic committee members, HR personnel and nursing superintendents. Participants from seven departments - OPD, OT, Ward, Refraction, Housekeeping, MRD and Optical attended the workshop.

Retina CME

Aravind – Tirunelveli, September 19

A CME was organised for the MLOPs to keep them updated on the recent developments in the field of retinal diseases and treatments. It attempted to identify, develop, and promote standards for the maintenance of quality. Nearly 90 MLOPs attended the CME.

PMOA Refresher Training Programme

Aravind – Pondicherry, November 8 – 13

At the refresher training for paramedical ophthalmic assistants (PMOA), total of 21 ophthalmic technicians from various health centers and government and general hospitals in Pondicherry, Karaikal, Mahe and Yanam

Training of Trainers workshop



Participants at library CME at Aravind-Madurai

regions participated. The six day training covered all the clinical aspects and recent developments in ophthalmology.

Library CME

Aravind – Madurai, November 26 – 27

A two day library CME was conducted by Aravind Library and Information Centre, Madurai to evaluate the services and performance of Aravind libraries. The CME aimed to further enrich the library services and to redefine the librarians' role in the various developmental activities of the library. Librarians from all Aravind Eye Hospitals attended.

Continuous Technical Education Programme

Aravind – Coimbatore arranged a technical education programme for the drivers during which they visited an exhibition on road safety measures.

Seminar on the Follow up of TQM (Total Quality Management) Initiatives

Aravind – Madurai, May 20

Concerned greatly about quality management, a seminar was organised by CII (Confederation of Indian Industries) on the follow up of TQM initiatives carried out in IOL Clinic, Medical Records Department, Operation Theatre and Ward. This was done as a follow up of the TQM workshop organised in December 2009. Representatives from Medical Records, Ward, IOL and Operation Theatre got an opportunity to share their experience on 5S initiatives (part of Total Quality Management).

Training on the Use of Safety Measures

Aravind – Pondicherry, December 18

A training programme on the use of fire extinguisher was organised for all staff members.



Ms. Arumugaselvi receiving memento from Mr. Nath at the TQM seminar

Workshop on Patient Satisfaction

Aravind – Tirunelveli, December 30

Mr. R. Ganesan, Manager - DCW handled a session on patient satisfaction and its importance to the staff of Aravind – Tirunelveli.

Employee Welfare Activities

To make the employees health conscious, Aurowel, a routine health check up programme is conducted every year for all Aravind employees. The employees undergo basic health screening under this programme, in batches of different age groups. Health insurance identity cards were distributed to the managers and senior staff as part of the Dr. V. Mediclaim Group Insurance scheme.

Graduation Day was organised in May for the MLOPs who completed their two year training programme. Cash awards were distributed to the toppers on the occasion as an incentive.

Aravind always acknowledges the invaluable service rendered by its staff. To inspire them for a better performance, retention awards were distributed to the staff who completed 5, 10, 15 and 20 years at Aravind.



Mr. R. Ganesan at the workshop on patient satisfaction at Aravind-Tirunelveli

Recreation Events

Excursions were arranged for the different cadres of staff to get to know each other and to have relief from the mundane and hectic work schedule. Several variety entertainments were organised at the monthly recreation programme organised in different centres.

Sharing the joy of season, the HR department organised celebrations on the occasion of Diwali, Navaratri, Pongal, Christmas and New Year.

Commemorating special days

Special programmes were arranged to mark the Republic Day and Independence Day celebrations. Mission Day was celebrated on July 7 to align the staff towards the organisation's mission of eliminating needless blindness. Vision Day was observed on October 1 to reflect on the founder chairman, Dr. G. Venkataswamy. International Womens Day was celebrated with a variety of programmes and competitions. Special celebrations were also arranged on the occasion of the anniversary of all the hospitals.



Awards and Accolades

Dr. R. Kim receiving Indian Express India Innovation award from Mr. Nandan Nilekani

Aravind and its team members continue to be recognised in different forums by diverse organisations, signifying both the relevance and significance of Aravind's work beyond just eye care:

Conrad N. Hilton Humanitarian Prize

Though announced earlier, the **Conrad N. Hilton Humanitarian Prize**, considered the most prestigious global award for humanitarian endeavours, was presented at a ceremony held in conjunction with the annual meeting of the Global Philanthropy Forum on 20th April 2010, in Redwood City, USA.

Dr. P. Namperumalsamy and Dr. G. Natchiar, were awarded the **For the Sake of Honour** awards by the A & T Network Systems, Pvt, Ltd on the 13th of April in recognition of their extensive humanitarian services.

IERG Recognition

The Indian Eye Research Group (IERG) honoured Dr. P. Namperumalsamy at Hyderabad on 31 st July by presenting an award in recognition of his seminal role in energising and catalysing vision research in India and for creating a global platform for the creative exchange of ideas in the field.



Vocational Excellence Awards

Dr. R. Ramakrishnan received the Vocational Excellence Award conferred on Aravind Eye Care System by the Rotary Club of Nagercoil in recognition of its adherence to highest ethical standards, and promotion of humanitarian service in eradicating avoidable blindness on the 3rd of July.

Dr. Usha Kim was conferred the Vocational Excellence Award by Rotary Club of Madurai North West on July 4 for her noble and committed services to the needy and visually impaired patients.

Best Organiser Award

Aravind's senior camp organiser Mr. S. Selvam was conferred with the "Best Organiser" award by the Lions District 324 A2 in recognition of his outstanding performance in organising camps collaborating with various Lions Clubs in the district during 2009-10.

Best Video Awards

At the American Society of Cataract and Refractive Surgery (ASCRS) conference held in Boston, USA Dr. R. Venkatesh's video on 'Safe and effective technique to tackle lens induced glaucoma in developing world' and Dr. Haripriya Aravind's video presentation on New techniques in iris fixation of rigid IOLs won the Best Video Awards in the 2010 Film Festival held on the 19th of April.

Honoured by the TIME

Time Magazine honoured Dr. P. Namperumalsamy, the Chairman of Aravind Eye Care System, as one among the '100 Most Influential People in the World' in its May 2010 issue.

Doctor of Science

Dr. G. Natchiar's four-plus decades of work in eye care and in training thousands of ophthalmologists, was recognised by the Dr. M. G. R Medical University at the 20th convocation ceremony by conferring on her the Doctor of Science, Hon. Causa on the 10th of July.

Honour by the Paris Tamil Kalachara Sangam

Dr. P. Sundaresan was honoured for his contribution to Ocular Genetics by Tamil Kalaachara Sangam, Paris, France on the occasion of its fifth anniversary celebrations in April 2010.



Dr. Natchiar being conferred the Doctor of Science, Hon. Causa



FICCI Awards in Health Care

At the national level, Aravind Eye Care System won two of the 2010 Awards in Healthcare instituted by Federation of Indian Chambers of Commerce and Industry (FICCI), under the categories of “Excellence in HR Practices and Personnel Welfare,” and “Excellence in Patient Experience” on 6th September.

EMPI-Indian Express India Innovation Award

The EMPI-Indian Express India Innovation Award was presented to Aravind on 13th July, in recognition of Aravind’s remote-diagnosis system structured to provide timely and affordable specialised eye screening for prevention of diabetes triggered vision loss thereby bridging the hitherto insurmountable, accessibility and economic gap between specialists and patients. Dr. Kim received the award from Chairperson, Unique Identification Authority of India (UIDAI).

Lifetime Achievement Awards

On the occasion of its 102nd anniversary, Bank of Baroda conferred “Baroda Sun Lifetime Achievement Award” on Dr. P. Namperumalsamy, for his extraordinary contributions to the field of medicine on July 20 at NCPA Auditorium, Mumbai.

‘Lifetime Achievement Award’ was presented to Dr. P. Namperumalsamy on 30th July at the annual TNOA conference held at Salem in recognition of his contribution to the science of ophthalmology and the functioning of TNOA.



Dr. P. Sundaresan being honoured by Tamil Kalaachara Sangam

Dr. P. Namperumalsamy receiving TNOA Lifetime Achievement Award





Outstanding Achievement Award



Teacher of Teachers Award for Dr. P. Namperumalsamy



Rhett Buckler Award

BOA Gold Medal

The Bombay Ophthalmologists' Association (BOA) presented Gold medal to Dr. Venkatesh Prajna for his outstanding contribution to the field of ophthalmology at a function held at Mumbai on August 13th.

Rhett Buckler Award

Recognition from peer ophthalmologists came through the Rhett Buckler award to Dr. R. Kim and his team at Aravind, during the annual meeting of the American Society of Retina Specialists (ASRS) in Vancouver, Canada from August 28 – September 1.

Outstanding Achievement Award

Soroptimist International Madurai chapter honoured Dr. G. Natchiar with the 'Outstanding Achievement Award' for her meritorious service in the field of health care on the 14th of September.

Teacher of Teachers

At the Eye-PEP (Postgraduate Education Program) held at LVPEI, Hyderabad on September 24, the Eye-PEP Icon and Teacher of Teachers award was presented to Dr. P Namperumalsamy, who encouraged the students to dream big and work hard to achieve their goals.

Appreciation by the Lions Club

Lions Club of Palayamkottai felicitated Sr. Chidambaram, Nursing Superintendent and Sr. Pappa Ramalakshmi, Free Hospital Manager from Aravind-Tirunelveli in appreciation of their selfless service to the society on November 21.

Lions Club felicitating Sr. Chidambaram and Sr. Pappa Ramalakshmi



Dr. Prajna at BOA



Best Poster Award

At the fifth International Congress of Glaucoma Surgery held at New Delhi on November 13, Dr Manju R Pillai received the Best Poster award for her presentation on 'Functional health literacy and barriers to follow up in patients initially diagnosed with glaucoma'.

Heroes of Humanity Award

Dr.R.D. Ravindran, Chairman, Aravind Eye Care System was conferred the Heroes of Humanity Award in recognition of his selfless service to the society by the Art of Living Foundation on the occasion of its 30th anniversary celebrations at Chennai on January 30.

Sujatha Savitri Award

Dr. Parag K. Shah was presented the Sujatha Savithri Rao Award for his paper on 'Ophthalmic Brachytherapy using Indigenous BARC Ocu-Prosta Iodine 125 seeds for Choroidal Melanomas' at the All India Ophthalmological Society conference held at Ahmedabad, February 3 – 6.

Best Affordable Specialty Hospital Award

The Federation of Indian Chambers of Commerce and Industry FICCI, in association with Ministry of Health and Family Welfare, Government of Tamil Nadu, conferred the Best Affordable Specialty Hospital Award to Aravind Eye Care System on March 12.

Appreciation by the Govt. of Tamil Nadu

Aravind Eye Hospital – Madurai received the award for the best implementation of Kalaingar Kapitu Thittam, a government sponsored health insurance scheme for the poor from the Government of Tamil Nadu on January 26.



Dr. Parag K. Shah receiving Sujatha Savitri award

Aravind staff with the award for the best implementation of Kalaingar Kapitu Thittam



Partners in Service

Aravind is fortunate and immensely grateful to have a growing network of partner organisations which provide inspiration, technical and material support to all Aravind endeavours. Currently Aravind partners with the following organisations in its various activities to carry on with its mission of eliminating needless blindness.

The Friends of Aravind, an organisation formed in the USA to help Aravind Eye Care System achieve its broader mission is now renamed as the Aravind Eye Foundation.

For Service Delivery, Training and More

- Acumen Fund, USA
- Adopt-a-Business, UK
- Alcon Laboratories Inc, USA
- Aravind Eye Foundation, USA
- Artemisia International - Social-Business Ventures, Brazil
- Canadian International Development Agency, Canada
- Carl Zeiss Meditec, Germany
- CBM International, Germany
- Combat Blindness Foundation, USA
- Essilor, India
- Fred Hollows Foundation, Australia
- Google Foundation, USA
- Indian Institute of Management, Bangalore, India
- Indian Space Research Organisation, India
- International Federation of Eye Banks, USA
- Indian Overseas Bank, Chennai, Madurai
- International Agency for Prevention of Blindness
- International Eye Foundation, USA
- International Council for Ophthalmology (ICO), London
- Lavelle Fund for the Blind, USA
- Leapfrog Foundation, USA
- Lions Clubs International Foundation, USA
- Light for the World, Austria
- Narotam Sekhsaria Foundation, Mumbai
- ORBIS International, USA
- Project Impact, USA
- Rotary International, USA
- Right to Sight, Ireland
- Schwab Foundation and Social Entrepreneurship, Switzerland
- Seva Foundation, USA
- Seva Service Society, Canada
- Sightsavers International, UK
- State Bank of India, Madurai
- Stanford University, Center for Global Business and the Economy
- Standard Chartered Bank, UK
- TIFAC-CORE, Department of Science and Technology, Government of India
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