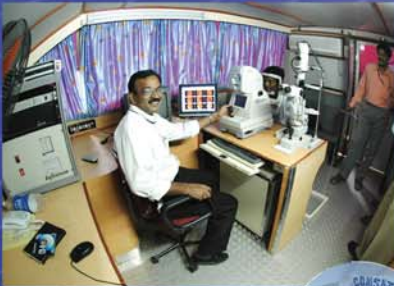




NELLAI SANDHIPPU

Tirunelveli
13th to 15th August
2004
TAMIL NADU OPHTHALMIC ASSOCIATION



Activities Report 2004

ARAVIND EYE CARE SYSTEM



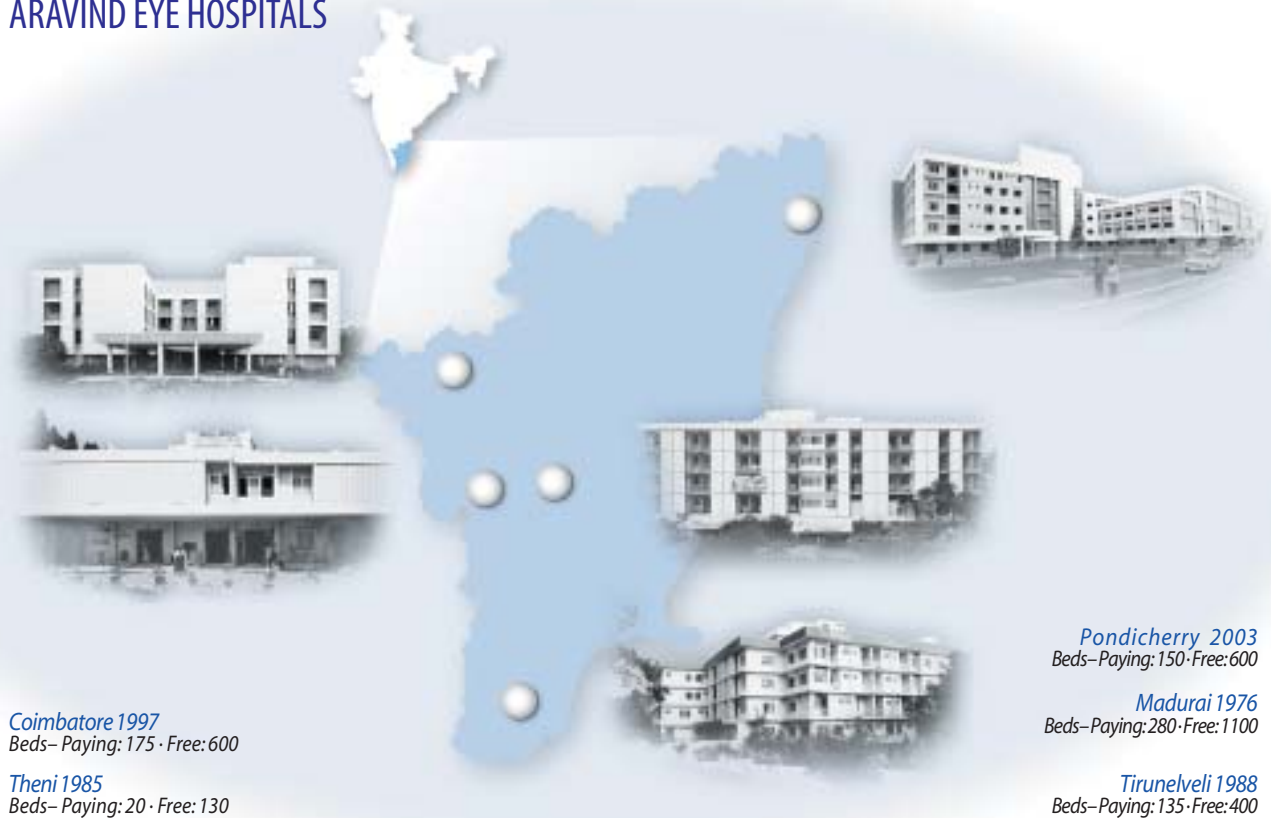
*There is a Power within that knows beyond
Our knowings; we are greater than our thoughts,
And sometimes earth unveils that vision here.
To live, to love are signs of infinite things,
Love is a glory from eternity's spheres.
Abased, disfigured, mocked by baser mights
That steal his name and shape and ecstasy,
He is still the godhead by which all can change.
A mystery wakes in our inconscient stuff,
A bliss is born that can remake our life.*

- Sri Aurobindo 'Savitri' Book Five, Canto Two

ARAVIND EYE CARE SYSTEM

To eradicate needless blindness by providing appropriate, compassionate and high quality eye care for all

ARAVIND EYE HOSPITALS



Coimbatore 1997
Beds - Paying: 175 · Free: 600

Theni 1985
Beds - Paying: 20 · Free: 130

Pondicherry 2003
Beds - Paying: 150 · Free: 600

Madurai 1976
Beds - Paying: 280 · Free: 1100

Tirunelveli 1988
Beds - Paying: 135 · Free: 400



SPECIALITY CLINICS

*Retina-Vitreous
Cataract & General Ophthalmology
Cornea, Contact Lens & LASIK Surgery
Paediatric Ophthalmology & Strabismus
Glaucoma
Uvea
Orbit & Oculoplasty
Neuro-Ophthalmology
Vision Rehabilitation Centre*



SUPPORT FACILITIES

*Ocular Microbiology Laboratory
Biochemistry Laboratory
Radiology Department
Instrument Maintenance Laboratory
Patient Counselling Services
Audio-Visual Department
Aravind Library & Information Centre
Aravind Communications Division*



COMMUNITY OUTREACH

*Free Eye Camps
School Eye Health Screening
Refraction Camps
Diabetic Retinopathy
Detection & Awareness Camps
Childrens' Eye Care Camps*



EDUCATION & TRAINING

Aravind Postgraduate Institute of Ophthalmology

Lions Aravind Institute of Community Ophthalmology (LAICO)

*Post Graduate Courses in Ophthalmology
Fellowship Programmes
Short-term Training Programmes
Continuing Medical Education Programmes
Paramedical Courses*



CONSULTANCY & CAPACITY BUILDING

Lions Aravind Institute of Community Ophthalmology (LAICO)

*Capacity Building for Eye Hospitals
Management Courses in Health Care
Task-oriented Training Courses
Custom Designed Courses*



RESEARCH

Aravind Medical Research Foundation

*Population-based Epidemic Surveys
Health Systems Research
Hospital and Community-based
Randomised Clinical Trials
Ophthalmic Research Laboratory
— Molecular Genetics
— Immunology
Microvirology
— Stem Cell Research*



EYE BANK

Rotary Aravind International Eye Bank

*Donor Screening
Collection, Evaluation, Preservation &
Distribution of Corneas
Training in Eye Banking
Training in Corneal Transplantation*



DEVELOPMENT OF COST-EFFECTIVE TECHNOLOGY

Aurolab

*Intraocular Lens Division
Suture Needle Division
Pharmaceutical Division
Spectacle Lens Division
Hearing Aid Division*



ARAVIND TELE-OPHTHALMOLOGY NETWORK (ATN)

*To impart Training and Education in Ophthalmology at a global level
Provide Online Patient Consultations
Develop affordable tele-ophthalmology solutions
Becoming an Information Resource Centre in the field of Ophthalmology
I.T. Oriented Village Vision Centres
V-Sat equipped Mobile Van*

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Front Cover

BACKGROUND:

- Dr.APJ.Abdul Kalam addressing the 52nd Annual Meeting of the TNOA at Tirunelveli through video conferencing
- V-SAT van

LEFT

1. Inauguration of Vision Centre at Ambasamudram
2. Dr.M.Srinivasan and Mr.R.D.Thulasiraj with Ln.Jimmy M.Ross, Vice President, Lions International
3. Dr.Kim inside the V-SAT van

Photo Credits

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Mike Myers, USA
Moses Caeser, USA
Naushad Mohamed, Aravind-Pondicherry
Raj Kumar, Aravind-Madurai

THE ARAVIND EYE CARE SYSTEM IN 2004

Innovation, Model Development and Growth

2004 was characterised by a continuing increase in patient volume coupled with technological innovation in creating access to eye care and the development of service delivery models designed to benefit other eye care programmes. In 2004, 1,636,031 out patient visits were handled while 227,435 surgical and laser procedures were performed. Training and research activities have expanded into new areas, while total research and training output continue to grow. On the production side, Aurolab saw an overall growth of 15% in sales.

INNOVATION

More Centres For Sight... Satellite Clinics & Vision Centres

This year saw the opening of two Vision Centres, one in Ambasamudram and the other in Andipatti in Theni District. Both centres are administered by the Aravind Eye Hospital in Theni.

A low-cost, wireless data link was established between Theni and Ambasamudram through n-logue enabling remote real-time video consultation by patients with a doctor in Theni. These patients also receive basic eye care services that include refraction testing and delivery of their glasses on the same day.

A Community Eye Clinic was established in Melur, a town 30 kilometres from Madurai, that previously had no eye care services. Originally estimated to draw 30 patients each day, the clinic in the first month of its operations handled 50–70 patients on a daily basis and is now developing plans to further increase this number. Though both experiments are in their early stages, they have already shown strong signs of being able to reach the community in a

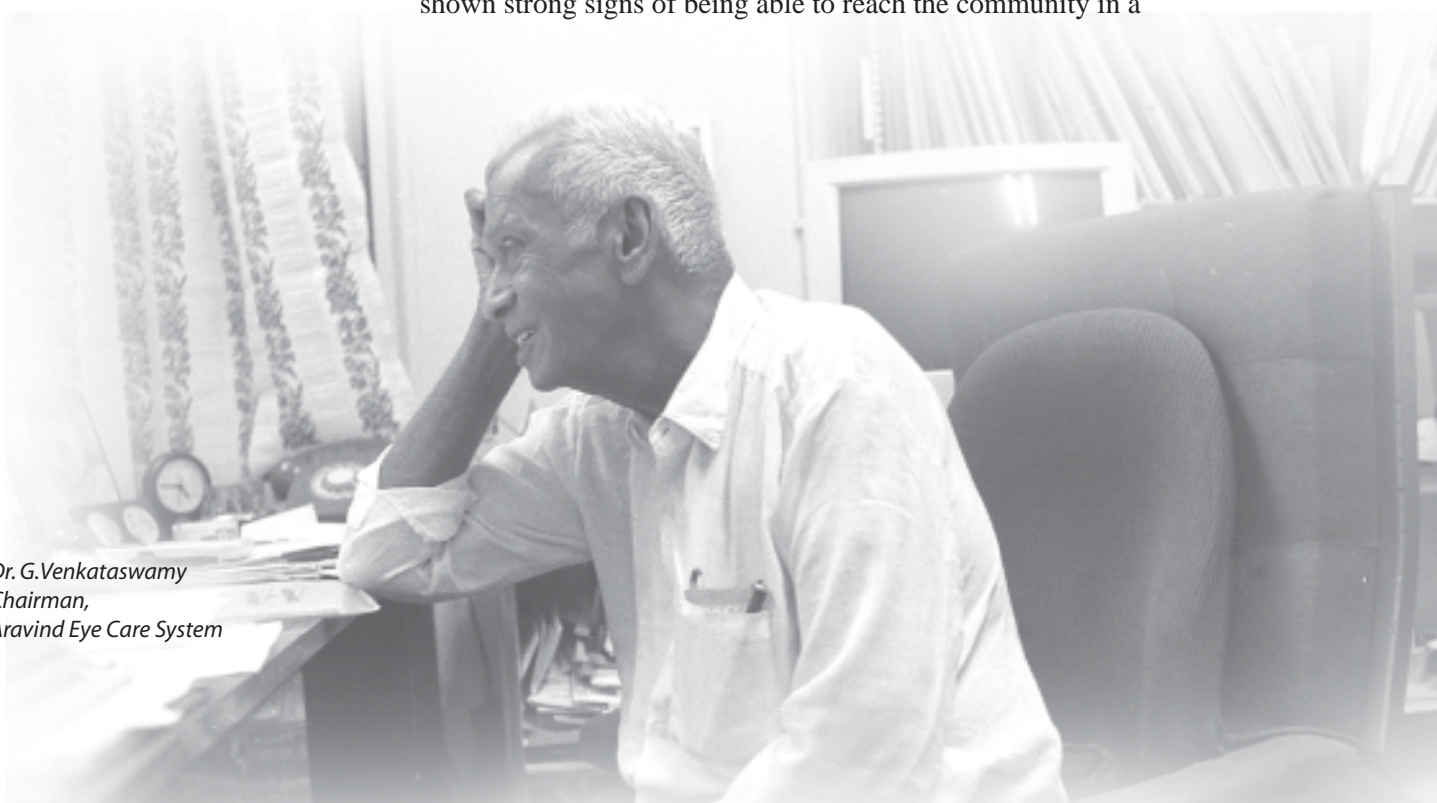
VISION CENTRE
கண் ஒளி மையம்

அரசினர்முகல், சூர்

அரசினர்முகல், சூர்
அரசினர்முகல், சூர்

ARAVIND
EYE CARE SYSTEM

Dr. G.Venkataswamy
Chairman,
Aravind Eye Care System





V-SAT van: Advanced Mobile Eye Screening Unit

Inside the V-SAT van



Dr.Kasthuri Rangan, Ex-Chairman of ISRO with Dr.P.Namperumalsamy at Aravind-Madurai



sustainable manner while significantly reducing costs to both patients and the hospital system. The win-win situation created by these advances increases the organisational viability of these efforts and revises the economic equation of eye care delivery.

A Van With A Difference. . .Aravind's Mobile Eye Screening Unit for Diabetic Retinopathy

An Advanced Mobile Eye Screening Unit was also inaugurated in 2004 as a joint effort supported by the World Diabetic Foundation and the Indian Space Research Organisation. While conditions like cataract and refractive error are dealt with through outreach activities and secondary level eye care, conditions like Diabetic Retinopathy, requiring highly specialised skills and equipment are not adequately addressed for want of these resources. The mobile van aims to address this problem. It is equipped with imaging technology which can be operated by mid-level medical personnel to capture images from remote areas and relay them to specially trained ophthalmologists at tertiary centres through a V-SAT satellite connection through the same link. This mobile screening unit meets the challenge of providing expert care in remote areas. Immediate printed advice regarding management of the condition is then provided from the base hospital.

MODEL DEVELOPMENT

At the end of Five Years. . .The Lions SightFirst Project for Diabetic Retinopathy

The completion of the Lions SightFirst Pilot Project for Diabetic Retinopathy (DR) represents the most significant model-building achievement of the year. The five-year project provides systematised care to Diabetic Retinopathy patients in Madurai, Theni, and Coimbatore. The project also developed models for estimating awareness levels, creating awareness, and screening at the community level. In addition, modules for training physicians, health workers and ophthalmologists were developed as part of this comprehensive project. Some of these aspects were highlighted in the internal midterm evaluation report that provided the basis for support of community oriented Diabetic Retinopathy projects by the Lions to other agencies within India and abroad.

Open-Sourcing Tools for Sight. . .Vision 2020 e-resource

Information technology and universal access to information through the internet provide an efficient mechanism to share lessons learned and best practices in eye care. Recognising this, Aravind and LAICO formally launched a portal called 'Vision 2020 e-resource' on World Health Day with support from the International Eye Foundation. This portal fills an important void by providing practical and time-tested resources for planning, implementing and monitoring different





Dr.G.Venkataswamy with Mr.PKM.Swamy and Mr.R.D.Thulasiraj at the inauguration of Vision2020 India office at LAICO

aspects of eye care services including disease control, human resource development and infrastructure development. The site is becoming increasingly popular and aims to become a platform for sharing best practices and better models of eye care worldwide.

GROWTH

New Buildings & Another Eye Bank.....Expansion At Aravind-Tirunelveli

A new free hospital is being constructed in Tirunelveli to accommodate increasing patient load and expansion of speciality services. The Aravind Eye Hospital at Tirunelveli also opened its own eye bank with support from Rotary International.

Making the Connection.....Linking the Aravind Eye Hospitals

All the hospitals within the system are now interconnected for electronic data transfer through a combination of leased lines and V-SAT satellite link. This important milestone will further enhance management of the entire system by ensuring that all relevant information is instantly available.

Leading A National & International Effort...LAICO, Vision 2020 & Beyond

Aravind played a major role in the formation of a national organisation called 'Vision 2020: The Right to Sight-India'. Formally established in May, the organisation is currently hosted in Madurai at LAICO.

LAICO's capacity-building now covers 175 hospitals, including the addition in 2004 of 19 hospitals across India, Bolivia, Malawi and Bangladesh. Aravind also helped set up a course for the maintenance of Ophthalmic Instruments and Equipment in Vietnam as part of their capacity-building process. This initiative supported by CBM, resulted in a course jointly taught in Hanoi by Aravind faculty and Vietnamese faculty who had earlier received 3 months training at Aravind.

OTHER MILESTONES...

The TIFAC-CORE Centre for Diabetic Retinopathy was inaugurated by His Excellency Shri P.S.Ramamohan Rao at Aravind-Madurai on April 16.

The annual meeting of the Tamil Nadu Ophthalmic Association was conducted by Aravind-Tirunelveli. At the

meeting Dr.P.Namperumalsamy was inducted as the President of the TNOA by Dr.Babu Rajendran, the outgoing President. A first in the history of TNOA was the live webcasting of the inaugural session including a special address by President

His Excellency Shri P.S.Ramamohan Rao, Governor of Tamil Nadu inaugurating the TIFAC-CORE Centre for Diabetic Retinopathy in the presence of Dr.R.Chidambaram, Principal Scientific Advisor, Government of India





At the screening of 'Infinite Vision' at the New York Film Festival



Dr.P.Namperumalsamy was inducted as the President of the TNOA by Dr.Babu Rajendran, the outgoing President

APJ Abdul Kalam, viewed by people worldwide.

A major multicentric research study has been initiated to understand the epidemiology of age-related eye diseases in India. The study hopes to determine the prevalence and risk factors for cataract and age related macular degeneration in the Indian context. The study is being executed in Delhi and in Pondicherry with technical support from the London School of Hygiene and Tropical Medicine.

The documentary film titled *Infinite Vision* had its formal premiere this year in the United States. The film tells the inspiring story of Dr.G.Venkataswamy's life and follows the evolution of the Aravind Model. Well received by audiences everywhere, it had the honour of being selected for screenings at film festivals in Los Angeles and New York, and went on to win the Best International Documentary Award in Los Angeles.

Leadership Transition

The Aravind Eye Care System (AECS) has begun formalising some changes in the roles and responsibilities of senior leadership team members in preparation for the second transition of leadership in its history. Dr.M.Srinivasan, Chief of Cornea Services and Chief Medical Officer of Aravind-Madurai, has been newly designated as the Joint Director in preparation for assuming Directorship in the coming year. Dr.G.Natchiar moves forward from her position as Joint Director to refocus her energy as the Director - Human Resource Development. Mr.G.Srinivasan, one of the Founder Trustees and Secretary of the GOVEL Trust will continue to guide the Organisation as Director-Finance. Mr.R.D.Thulasiraj who heads LAICO as its Executive Director will also lead the IT & System initiatives as Director-IT & Systems, while Dr.S.R.Krishnadas, Chief

Dr.R.Ramakrishnan, Dr.Rathinasamy, Dr.W.Selvamurthy, Mr.Atul Anand, Dr.Babu Rajendran, HE.Thiru.Dalavai Sundaram, Dr.P.Namperumalsamy, Dr.Vijayalakshmi and Dr.S.Sukumar at the inauguration of the annual meeting of TNOA





Mr.Ramanathan and Mr.Pasupathy planting a tree at Aurofarm



Dr.David Musch, Professor, Kellogg Eye Institute, University of Michigan, Ms.Cindy Harrison and HR staff of Chelsea Community Hospital with Ms.Preethi Pradhan



Dr.M.Srinivasan has taken over as Joint Director, Aravind Eye Care System

of Glaucoma Services steps up to become the Chief Medical Officer for Aravind-Madurai.

Department of Human Resource Development

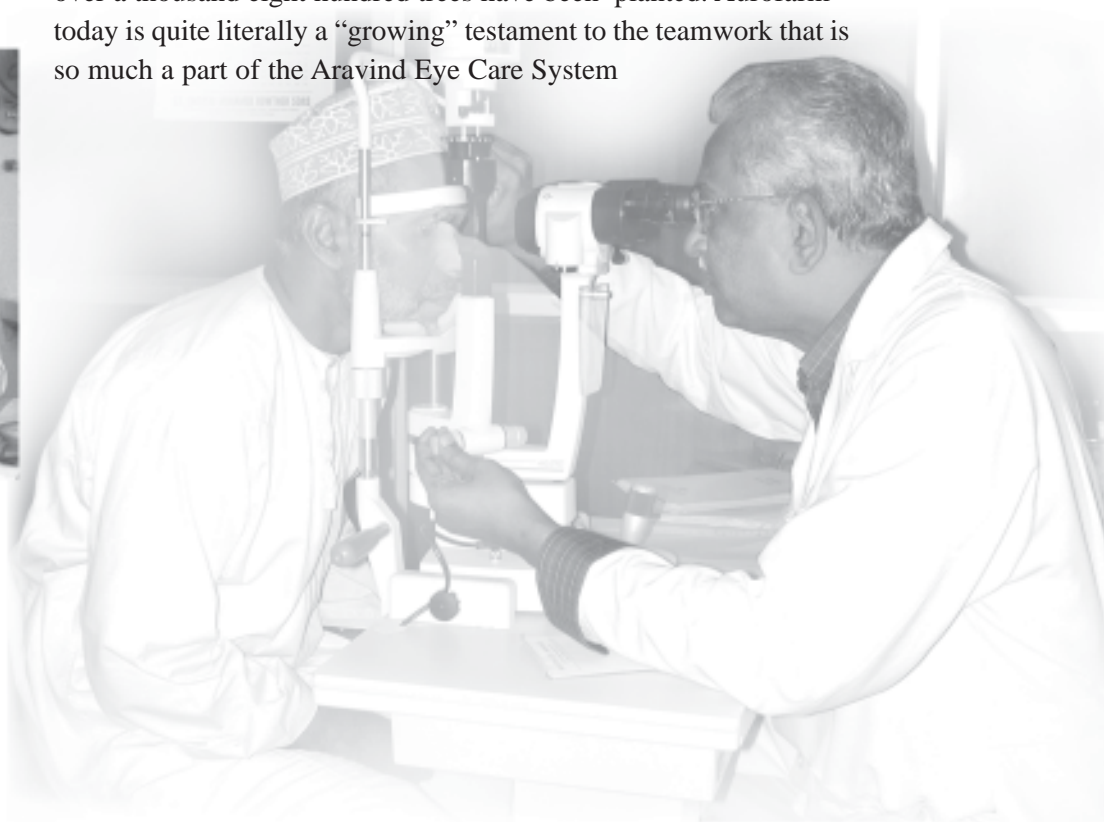
Under the leadership of Dr.G.Natchiar as the Director for Human Resource Development, several workshops were conducted for various categories of Aravind staff.

Ms.Preethi Pradhan, LAICO faculty-in-charge of Human Resource Development was at Chelsea Community Hospital, Chelsea, Michigan, USA to receive training and observe the HR Department there under the guidance of Ms.Cindy Harrison, Vice President, HRD.

Another Green Revolution . . . Aravind's New Organic Farm!

Another innovative first in Madurai has been the inauguration of Aurofarm. Inspired and driven by Dr.G.Natchiar, Aurofarm was launched with the view to serve both patients and staff at Aravind. The farm, located on the beautiful 80-acre plot that will eventually house Aurolab's new facility, now grows a wide range of organic crops that have already been through several harvests. The land also includes space for a recreational centre for Aravind staff and their families.

Organic fertiliser for Aurofarm comes from a uniquely elegant system where Madurai's hospital kitchen waste gets fed to worms that in turn produce a highly rich compost with which the crops are fertilised. This system helps utilise waste in an intelligent and sustainable way. Community spirit is a key element of this endeavour, and, to that end, each hospital staff planted one tree on-site and were given a special card with the tree's type and plot number on it. So far, over a thousand eight hundred trees have been planted. Aurofarm today is quite literally a "growing" testament to the teamwork that is so much a part of the Aravind Eye Care System



ARAVIND-MADURAI

As the hub of the Aravind Eye Care System, Aravind-Madurai in 2004 saw a host of new services added and new training activities undertaken that have further raised its profile as a world-renowned centre of excellence in eye care.

Dr.Usha Kim, Chief, Orbit and Oculoplasty Clinic, Aravind-Madurai



The hospital handled a total of 588,116 out patient visits, performed 101,767 surgeries and conducted 369 comprehensive camps, 22 school screening camps, and 21 diabetic retinopathy camps.

The Orbit & Oculoplasty Clinic at Aravind-Madurai enhanced the free care to patients with retinoblastoma and other eye cancers through the support of the Ring of Hope Fund. This novel effort offers a second chance to the vast number of children and adults with eye tumours for whom modern advances in life-saving oncology treatment would otherwise have been inaccessible. Making use of the voluntary time and expertise of local physicians, the clinic still needed funds for the chemotherapy that its patients required. The Ring of Hope Fund was established to allow donors to contribute to the ongoing treatment of these critically ill patients. The website giving further details is located at: http://aravind.org/ring_of_hope/index.htm.

Recognising the apprehensions and concerns of patients who lose their eyes due to disease and accidents, Aurolab helped to start an Oculoprosthetics Centre. Dr.Mark Duffy brought Ms.Dori K.Hosek.Melnik, senior ocularist from the US to Madurai to train Aravind staff in making high-quality, customised prostheses that would provide a near-normal look to patients at an affordable cost. The only other such centre in India is in Mumbai.

The Cornea Clinic is the home of a new customised state-of-the-art LASIK machine, Zyoptix. The hospital currently attracts an average of six Lasik patients a day, the vast majority of whom are young people intent on becoming spectacle-free. Plans are being developed to attract nearly twice that number of patients in 2005.

The Ring of Hope Fund



Helping children and adults with life-threatening ocular tumours.

Dr.S.Aravind, Dr.Minu Mathen, Dr.Takayuki Akahoshi, Dr.Anand Dev, Dr.Suhas Haldipurkar and Dr.Haripriya at the inauguration of the wetlab





Dr. Ilango showing the low vision aids to a group of trainees from China



Dr. S.R. Rathinam was inducted as the Vice-President of the Uveitis Society of India



Out Patients at the Melur clinic

Dr. G. Natchiar inaugurating the Community Eye Clinic at Melur



Dr. S.R. Krishnadas took over as the Chief Medical Officer of Aravind-Madurai

Madurai also hosted a Phaco Symposium during which the Aravind-Alcon Centre for Surgical Advancement was inaugurated. The three day panorama on Phaco and SICS included lectures, presentations, live surgeries, wetlab sessions and discussion groups on every aspect of cataract surgery around phacoemulsification. A total of 192 delegates from around the country participated. Dr. Takayuki Akahoshi from Japan who participated in this symposium, inaugurated the Aravind-Alcon Centre. He also demonstrated his Phaco Prechop technique to the participants.

At the third annual conference of the Uveitis Society of India held at Chandigarh in the month of February, Dr. S.R. Rathinam was inducted as the Vice-President by Dr. J. Biswas, the President of the Society.

Through a special grant from the International Eye Foundation and with special help from Lighthouse International, USA the Low Vision Clinic received a valuable set of low vision evaluation equipment and aids, including an illuminated vision testing cabinet that facilitates increased accuracy during vision evaluation.

Following the Auroutsav celebrations, the hospital began a weekly e-newspaper called Thingal Udayam. Currently published every Monday, the paper continues to highlight the talents of Aravind physicians, staff, volunteers and supporters and currently is made available on the intranet system.

In an innovative attempt to satisfy the ever-increasing requirements of the eye care for the rural population of Madurai district, a Community Eye Clinic providing primary eye care was inaugurated at Melur for people in and around this town.



ARAVIND-THENI

Aravind-Theni continued to redefine the possibilities for a small eye hospital in 2004. In addition to expanding its ambitious outreach programmes, a number of new initiatives have begun in Theni that hold real potential for revolutionising eye care delivery even in such rural settings.

At the Ambasamudram Vision Centre



Inaugural ceremony of the Andipatti Vision Centre



inside the Vision Centre



The hospital handled a total of 91,751 out patient visits, performed 9,113 surgeries and conducted 63 comprehensive eye screening camps, 10 school screening camps, and 8 diabetic retinopathy screening camps.

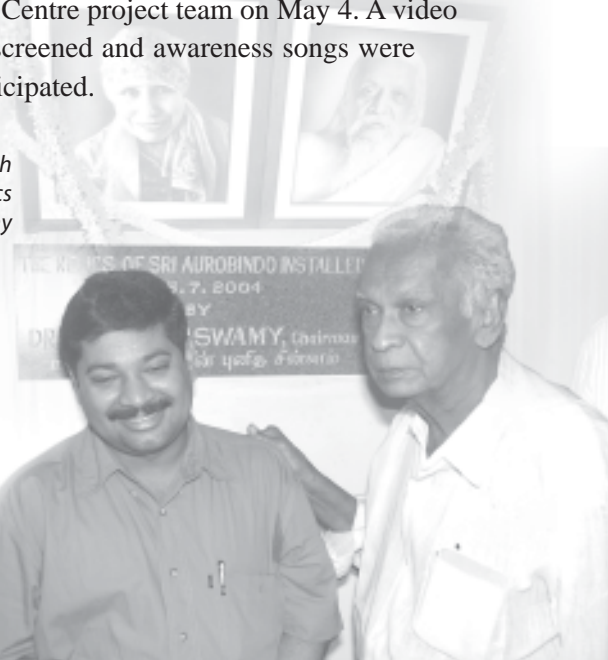
A recent study showed that only about 7% of the rural population needing eye care show up for service at eye camps. In response to the challenge of reaching out further, a number of Vision Centres have been inaugurated under the administration of Aravind-Theni. These centres are small, low-overhead facilities that are able to provide primary care, refraction testing, and spectacles. They also screen patients for referral to the eye hospital, thus maximising the effectiveness of the hospital in delivering secondary and tertiary care. An added benefit to the Vision Centres is that they are one step closer to planting the demand for eye care services into rural areas, rather than driving that demand from the outside.

The first Vision Centre was inaugurated in April at Ambasamudram, a village near Theni. Here a high-bandwidth wireless data network link has been established with the Theni hospital, enabling some dramatic applications in telemedicine. Features like remote diagnosis will further enhance the ability to reach patients more efficiently and enable a high quality of care to reach rural areas at reduced cost.

The second Vision Centre was inaugurated in December at Andipatti. Through a grant from the International Eye Foundation, Aravind-Theni plans to open a Vision Centre for every 100,000 people in Theni district to bridge the gap in accessing of eye care services by rural populations.

One of the main objectives of these Vision Centres is to create awareness among the community on various eye diseases. In line with that mission, a community based awareness program was organised at Ambasamudram by the Vision Centre project team on May 4. A video on Diabetic Retinopathy was screened and awareness songs were played. Over 400 villagers participated.

Dr.Manoranjan Das with Dr.G.Venkataswamy at the relics installation ceremony



ARAVIND-TIRUNELVELI

2004 has been a year of steady improvements and solid achievement for Aravind-Tirunelveli as it quickly becomes one of the model hospitals in the Aravind system. In addition to the inauguration of new services, existing clinics significantly increased patient volume while plans were advanced for the expansion of facilities in the coming year.



Dr.R.Ramakrishnan in the Glaucoma Centre of Excellence



Dr.Mohideen with Glaucoma Fellows

The hospital handled a total of 294,683 out patient visits and performed 34,753 surgeries and conducted 242 comprehensive camps, 17 school screening camps, and 43 diabetic retinopathy screening camps. The number of workshops for practising ophthalmologists, school teachers, and village health workers increased to 31 in 2004, an increase of 76% over the previous year.

Speciality clinics have not only served larger patient populations, but have also begun new initiatives and outreach programmes in their respective disciplines.

Under the leadership of Dr.Meenakshi, the Paediatric Clinic screened 20,915 children through school screening camps, while also participating in a general population screening programme for the study of congenital rubella.

The Cornea Clinic was strengthened with the establishment of the Rotary Aravind Eye Bank in May 2004. A number of workshops and other parallel awareness activities promise to increase the effectiveness and reach of the Cornea Department and Eye Bank.

The Retina and Uvea Clinics also increased patient and surgery volume benefiting from the ongoing efforts supported by World Diabetic Foundation to expand Aravind's ability to deal with diabetic retinopathy. Through extensive awareness and outreach programmes, a significant percentage of the increase in patient volume came from patients seeking treatment for diabetic retinopathy.

The Aravind-Zeiss Glaucoma Centre grew by a phenomenal 21% for out patient services while achieving 36% growth in surgery volume following general awareness campaigns on glaucoma and networking with ophthalmologists.

*Mr.Ganapathy, Rotary Governor, Tvl. Dist.
Rtn.Jegathesan, Rtn. Sankaranarayanan,
President, Rotary club, Tvl. West,
Dr.P.Namperumalsamy and
Dr.R.Ramakrishnan at the inauguration
of the Rotary-Aravind Eye bank*



Dr.R.Ramakrishnan, Chief Medical Officer, Aravind-Tirunelveli, also the Chief of Glaucoma Services, attended many national conferences and gave numerous lectures that served to strengthen the image of the department as a centre of excellence in glaucoma treatment. A general awareness campaign on glaucoma has also been launched, and 41 doctors have been trained in glaucoma management through the 8 weeks course offered in 2004. The Glaucoma Clinic also launched the INGOTT (International Glaucoma Outcome Treatment Trial) study which is designed to find the outcome of different modalities of treatment for primary open angle glaucoma ie. cataract surgery with IOL+medication against combined surgery (phacotrabeculectomy).

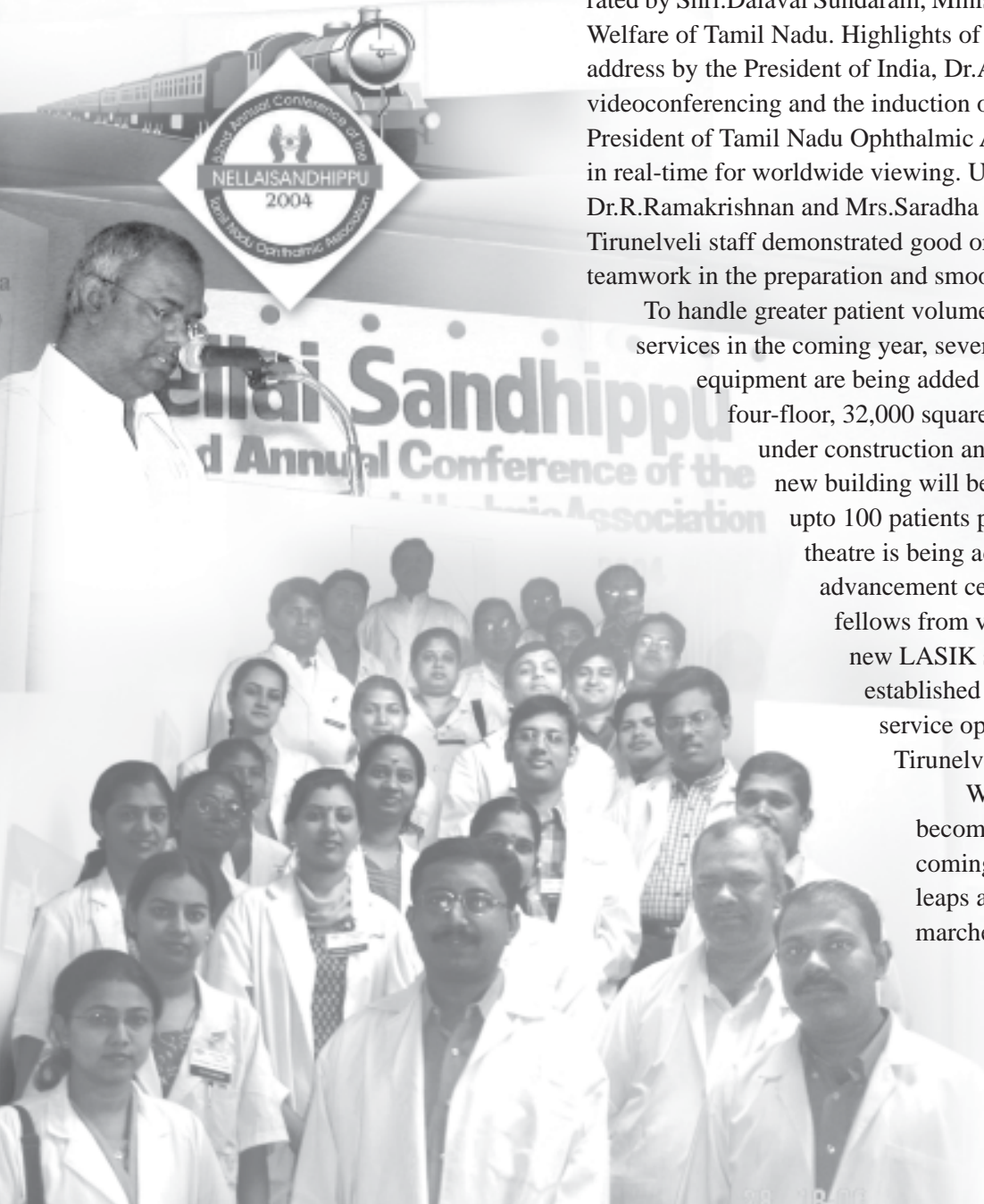


A unique and well appreciated feature of the conference was 'Breakfast with Experts' session-wherein the delegates had discussions with experts from various ophthalmic speciality fields

Aravind-Tirunelveli hosted the 52nd Annual Conference of the Tamil Nadu Ophthalmic Association. The conference was attended by more than 600 delegates and 70 trade representatives. It was inaugurated by Shri.Dalavai Sundaram, Minister for Health and Family Welfare of Tamil Nadu. Highlights of the conference included an address by the President of India, Dr.APJ.Abdul Kalam via videoconferencing and the induction of Dr.P.Namperumalsamy as the President of Tamil Nadu Ophthalmic Association. This was webcast in real-time for worldwide viewing. Under the guidance of Dr.R.Ramakrishnan and Mrs.Saradha Ramakrishnan the Aravind-Tirunelveli staff demonstrated good organisational skills and excellent teamwork in the preparation and smooth execution of the conference.

To handle greater patient volume and provide a wider range of services in the coming year, several facilities and key pieces of equipment are being added to Aravind-Tirunelveli. A new four-floor, 32,000 square foot free hospital block is under construction and will open its doors soon. The new building will be able to accommodate upto 100 patients per floor. A fourth operating theatre is being added along with a surgical advancement centre to train postgraduates and fellows from various parts of the country. A new LASIK surgery centre is also being established to provide a greater range of service options to the population of Tirunelveli.

With so many new facilities becoming available in 2005, the coming year promises even bigger leaps as Aravind-Tirunelveli steadily marches towards excellence.



ARAVIND-COIMBATORE

2004 at Aravind-Coimbatore was characterised by greater training and information dissemination through programmes, conferences, newsletters and other general awareness activities, while continuing to serve a large number of patients.

The hospital handled a total of 441,789 out patient visits, performed 56,463 surgeries and conducted 381 comprehensive eye screening camps, 71 school screening camps, and 13 diabetic retinopathy screening camps.

A 5 day hospital-based programme on Retinopathy of Prematurity (ROP) was organised by ORBIS International. Dr.Khaled Tawansy, Director of Paediatric Vitreo Retinal and Uveitis Service, Children's Hospital, Los Angeles, USA was the visiting faculty. He performed surgery on cases of end stage ROP encouraging the ophthalmologists at Aravind to develop their surgical skills to manage ROP even at advanced stages.

Several update lectures were held throughout the year to provide ophthalmologists and residents with the latest information on treatment options. A cornea and refractive surgery update was held in June that attracted more than 75 ophthalmologists from all over India. An update on uveitis and intraocular inflammation was held in September, in which about 140 delegates participated.

The 15th Update in Ophthalmology for Postgraduate Students was held in Coimbatore during the month of October. The structured week long course chaired by experienced ophthalmologists enabled students to enhance their knowledge of various ophthalmic

subspecialities. The interactive sessions, lectures, clinical case presentations, discussions with experts and live surgical



Dr.Kalpana Narendran with the postgraduate student participants at the '15th Update in Ophthalmology' held at Aravind-Coimbatore

Dr.Richard Hirschman and Dr.Narendran at the inauguration of the Ocular Oncology Centre at Aravind-Coimbatore



demonstrations were attended by a record number of 56 students from various colleges throughout India, the highest number so far. Mock exams were also conducted to improve students' clinical and presentation skills.

Continuing Medical Education (CME) for counsellors also took place at Aravind-Coimbatore. The objective was to sharpen existing counselling skills and generate creative thinking for overall improvement of the department. Two sessions were held, and a number of useful ideas emerged and are being evaluated for adoption in Coimbatore and other hospitals by Aravind counsellors.



At a Diabetic awareness programme at Aravind-Coimbatore

Apart from the diabetic awareness programme, a glaucoma awareness programme was started in the month of April. Video presentations were shown to public at several places to create awareness.

A Uvea Newsletter was started to disseminate information and knowledge to enhance the quality of eye care provided by ophthalmologists inside and outside Aravind Eye

Hospitals. The newsletter is currently circulated to doctors in parts of Tamil Nadu and East Kerala and contains interesting case studies and conferences held in the area.

The Department of Ocular Oncology was inaugurated on December 13 by Dr.Richard Hirschman (Professor of Oncology, USA) and Dr.Christine Melton (Professor of Ophthalmology, USA) in the presence of Dr.R.Venkatesalu, Managing Trustee, Sri.Ramakrishna Hospitals, Dr.P.Namperumalsamy and Dr.G.Natchiar. This is one of the very few ocular oncology centres in the country and will provide the much needed services for managing ocular tumours.

Aravind-Coimbatore through patient satisfaction surveys continues to improve patient services to achieve and maintain service excellence.

ARAVIND-PONDICHERRY

2004 at Aravind-Pondicherry has been a challenging year as the hospital continues efforts to bolster patient volume in its second full year of operation. Outreach and awareness activities have been the mainstay of this effort, while new clinics have been inaugurated to provide a wider range of services for that population, contributing to the steady upward creep in patient volume.

The hospital handled a total of 219,692 out patient visits, performed 25,339 surgeries, conducted 216 comprehensive camps and 64 school screening camps. This represents a dramatic increase of 105% in out patient visits and 106% in surgeries performed over 2003. With the existing infrastructure, there is now an opportunity to further double these figures. The other major focus was developing the medical manpower-recruiting and training new medical staff. Around fourteen new doctors were recruited and trained.

An experimental initiative called **CARE** (Creating Access for Rural Eye Care) has been launched under the leadership of Dr.G.Venkataswamy. The project seeks to influence the health seeking behaviour and increase the sustainability of the outreach activities while continuing to reach the previously unreached. The ambitious plan aims to link up with rural computer kiosks and load them with a spectrum of easily accessible eye care information that patients can use to learn about conditions and treatment options. With the assistance of village health care workers, the plan is to develop an alternate method to eye camps to reach and empower the patients so that the demand for treatment comes from the villages rather than being driven into them. The installation of high-bandwidth wireless computer links within Aravind's network will make remote consultations at these internet kiosks possible in the near future.

The inauguration of the International Development Research Centre project was held at the MSSRF Centre, Pillaiyarkuppam, Pondicherry. This project aims to provide:

- wider dissemination (through the internet, radio, community newspaper, co-partners etc.) of eye care education
- technical advice for carrying out eye care surveys in the villages
- training for village volunteers on how to examine patients and prescribe glasses for near vision, as well as on how to conduct periodical examinations for diabetic patients and school children to detect eye problems with simple field equipments
- online interaction between a doctor at Aravind and the villagers once in 15 days.
- a small monitoring committee to evaluate the programme.



Dr.Veena in the Children's Eye Care Centre

Dr.Manoj with diabetic patients at an awareness meeting at Aravind-Pondicherry





As part of the INDEYE study Dr.Tiruvengadakrishnan visited University of Parma, Italy for training in Lens Photography and LOCS III grading system



Mr.Panchanathan in-charge of the DEWATS system in front of Aravind-Pondicherry

The INDEYE Study team with Dr.Astrid Fletcher and Mr.R.D.Thulasiraj



During the launch a Memorandum of Agreement was signed between MSSRF and Aravind Eye Hospitals, represented by Dr.R.D.Ravindran.

In July, an Essilor lab was set up to increase the ability of the optical lab to deliver same-day service for spectacles. Essilor is the largest manufacturer of spectacle lenses in the world, and given that Aravind treats the largest number of patients in the world, a natural collaboration has been evolving over the years. The inauguration of the new lab enabled 85% of spectacle orders to be fulfilled in the same day with an even more ambitious delivery target set for the upcoming year.

A Glaucoma Clinic was launched under the medical expertise of Dr.R.Venkatesh. Inaugurated in December, the clinic will eventually become an important clinical training and research centre as patient volume increases.

The Paediatric Clinic was inaugurated under the leadership of Dr.Veena. The clinic is actively involved in screening of school children. In collaboration with the department of education 36,592 children from 75 schools were screened last year alone, 1,055 children were prescribed glasses and 587 children requiring speciality care were referred to the hospital.

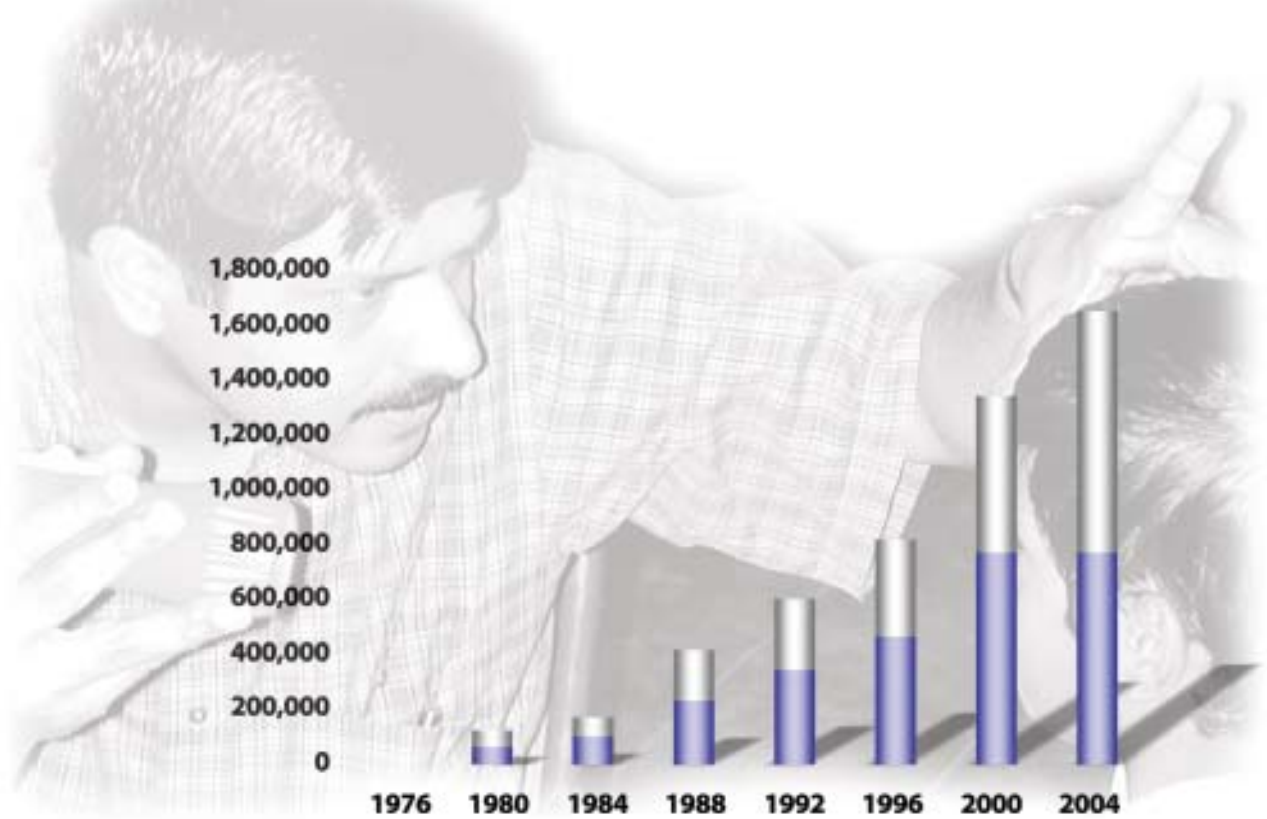
A comprehensive survey has been started in collaboration with London School of Hygiene & Tropical Medicine and RP Centre, New Delhi. The survey aims to develop a more comprehensive understanding of the prevalence, risk factors, and distribution of age related eye disorders like cataract and macular degeneration in India. Findings from the study will help structure and plan future treatment programmes to more effectively deal with India's specific ophthalmic profile.

The Government of Pondicherry gave an award for the best garden in the city to Aravind-Pondicherry. Not only beautiful, an interesting feature of the garden is that it is watered entirely by reclaimed grey-water. This is the largest organic grey-water treatment system in India, called DEWATS, capable of processing 1000 cubic meters of water a day. Wastewater from the hospital and residential facilities moves through multi-phase filtration before ultimately getting reused for either toilet flushes, garden watering, or for the garden water fountain. In addition to saving thousands of litres of water daily, the system's odourless reclaimed water demonstrates yet another aspect of the remarkable sustainability and elegant efficiency that has become synonymous with Aravind.

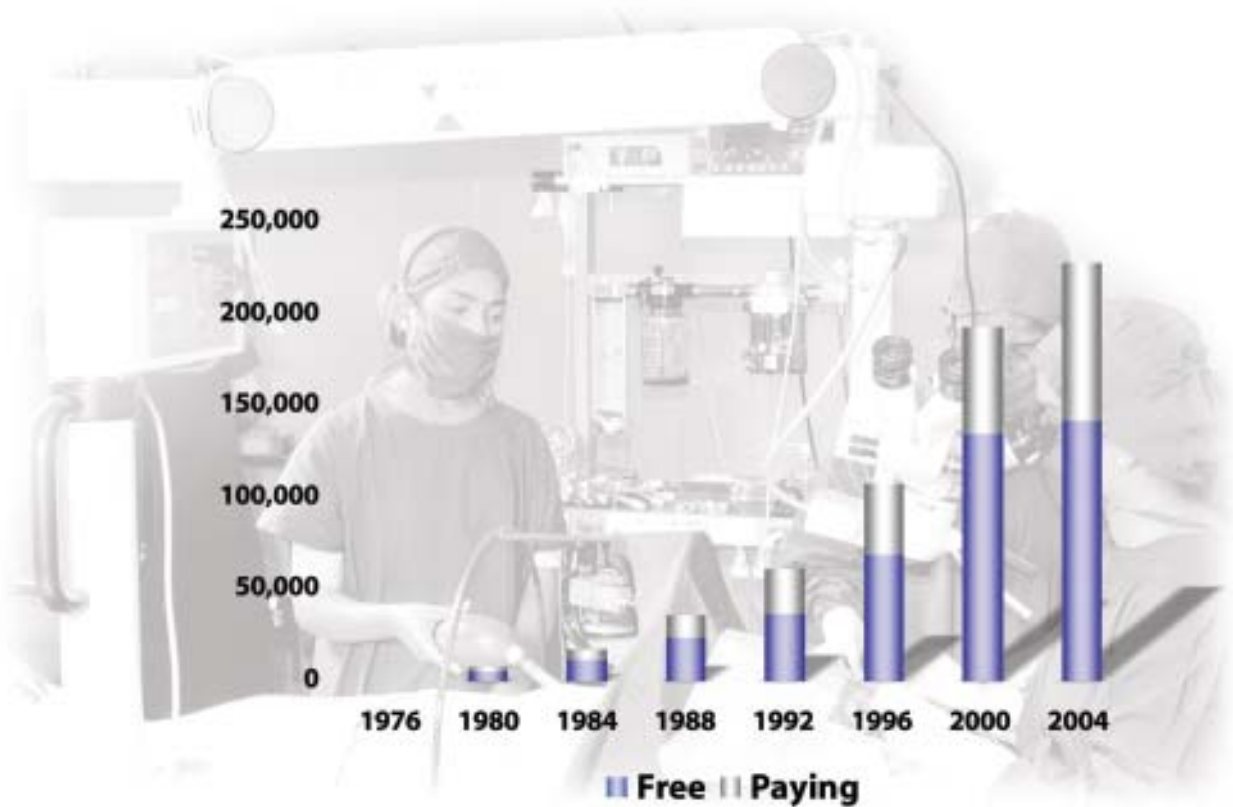
PERFORMANCE-2004

	MADURAI	TIRUNELVELI	THENI	COIMBATORE	PONDICHERRY	TOTAL
OUT PATIENT VISITS						
Paying	308,313	164,915	49,010	223,604	124,329	870,171
Free (Base Hospital)	136,714	55,458	23,209	83,820	33,157	332,358
Free (Eye Camp Out Patients)	143,089	74,310	19,532	134,365	62,206	433,502
TOTAL Out Patient visits	588,116	294,683	91,751	441,789	219,692	1,636,031
SURGERIES						
Paying	39,419	13,950	2,321	20,623	9,432	85,745
Free (Direct & Camp)	62,348	20,803	6,791	35,840	15,907	141,689
TOTAL Surgeries	101,767	34,753	9,113	56,463	25,339	227,435
CAMPS	369	242	63	381	216	1,271
SURGERY DETAILS						
Cataract Surgery						
ECCE & Other Lens Removal Procedures without IOL	1,088	358	79	785	489	2,799
ECCE with IOL Implantation	20,921	3,161	1,407	6,029	3,080	34,598
ECCE IOL Implantation with Phaco	11,739	4,806	703	7,262	3,764	28,274
Small Incision Cataract Surgery	39,932	18,334	5,877	28,521	12,190	104,854
Total Cataract Surgeries	73,680	26,659	8,066	42,597	19,523	170,525
Trabeculectomy & Combined Procedure	1,968	1,183	100	1,181	327	4,759
Retinal Detachment	568	51	-	414	73	1,106
Vitreous Surgery	578	47	-	558	120	1,303
Membranectomy	42	5	-	16	5	68
Squint Correction	656	89	-	236	55	1,036
Keratoplasty	312	35	-	183	17	547
Pterygium	526	74	23	450	143	1,216
Ocular Injuries	760	82	18	413	188	1,461
Orbitotomy	88	-	-	9	-	97
Ptosis	166	6	-	78	11	261
Lid & Socket Reconstruction	891	132	6	184	194	1,407
Lacrimal Surgeries	2,093	741	235	727	505	4,301
Other orbit and Oculoplasty Surgeries	535	28	9	12	25	609
Other Surgeries	3,107	754	68	2,404	956	7,289
Laser Procedures						
Laser Photocoagulation	8,837	2,650	106	4,408	2,172	18,173
Nd.Yag Iridectomy	2,040	898	112	264	416	3,730
Nd.Yag Capsulectomy	3,637	1,319	370	1,854	609	7,789
LASIK Refractive Surgery	1,283	-	-	475	-	1,758
TOTAL	101,767	34,753	9,113	56,463	25,339	227,435

OUT PATIENT VISITS (1976 - 2004)



SURGERIES (1976 - 2004)



COMMUNITY OUTREACH

Community outreach programmes continue to be a cornerstone of Aravind's strategy for reaching the unreached. With an eye towards sustainability, pilot programmes aimed at changing the dynamics of service delivery were a hallmark of 2004.



Dr.R.D.Ravindran with Mr.Gagandeep Singh Bedi I.A.S, Collector, Cuddalore district

In the year 2004, a total of 1,271 screening camps were conducted by Aravind Eye Hospitals, screening a total of 433,502 patients, 92,773 of whom underwent surgery. In addition, several speciality outreach camps and activities were carried out to reach different target groups.

EYE SCREENING CAMPS FOR SCHOOL CHILDREN

149,510 children in 184 schools were screened for visual deficiencies in 2004 and 11,338 children were found to have visual defects. 5,696 of these children were given glasses to correct refractive errors.

- A meeting was held on July 24th at St.Joseph Higher Secondary School for the school headmasters of Cuddalore district. The objective of the meeting was to create awareness among the school authorities about the importance of school eye screening. Mr.Gagandeep Singh Bedi I.A.S, Collector, Cuddalore District, chaired the meeting. Dr.R.D.Ravindran, Dr.Veena, and the camp manager and organiser took part in this meeting.
- School screening programmes as well as awareness building sessions on general paediatric eye diseases were organised in all the Aravind Eye Hospitals.

REFRACTION CAMPS

Again pairing up with a host of industrial and governmental bodies, Aravind continues to conduct refraction camps for their employees and dispense custom fitted prescription glasses at discounted prices. 127 such camps conducted in 2004 screened a total of 27,632 employees.

DIABETIC RETINOPATHY (DR) SCREENING CAMPS

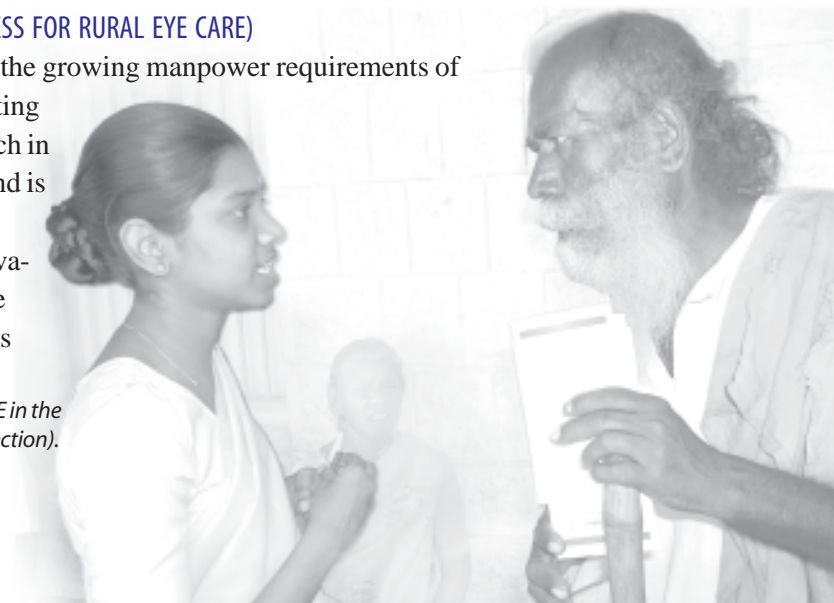
Through 280 DR screening camps conducted through Lions and WDF projects, a total of 50,592 people were screened in 2004. Of them 11,901 had diabetes and 1,678 of them suffered from diabetic retinopathy.

(For more complete information on Aravind's Diabetic Retinopathy campaign, see the Diabetic Retinopathy section).

CARE (CREATING ACCESS FOR RURAL EYE CARE)

Recognising the growing manpower requirements of repeatedly conducting community outreach in the villages, Aravind is making use of technological innovation to increase the sustainability of this effort.

(Read more about CARE in the Aravind-Pondicherry section).

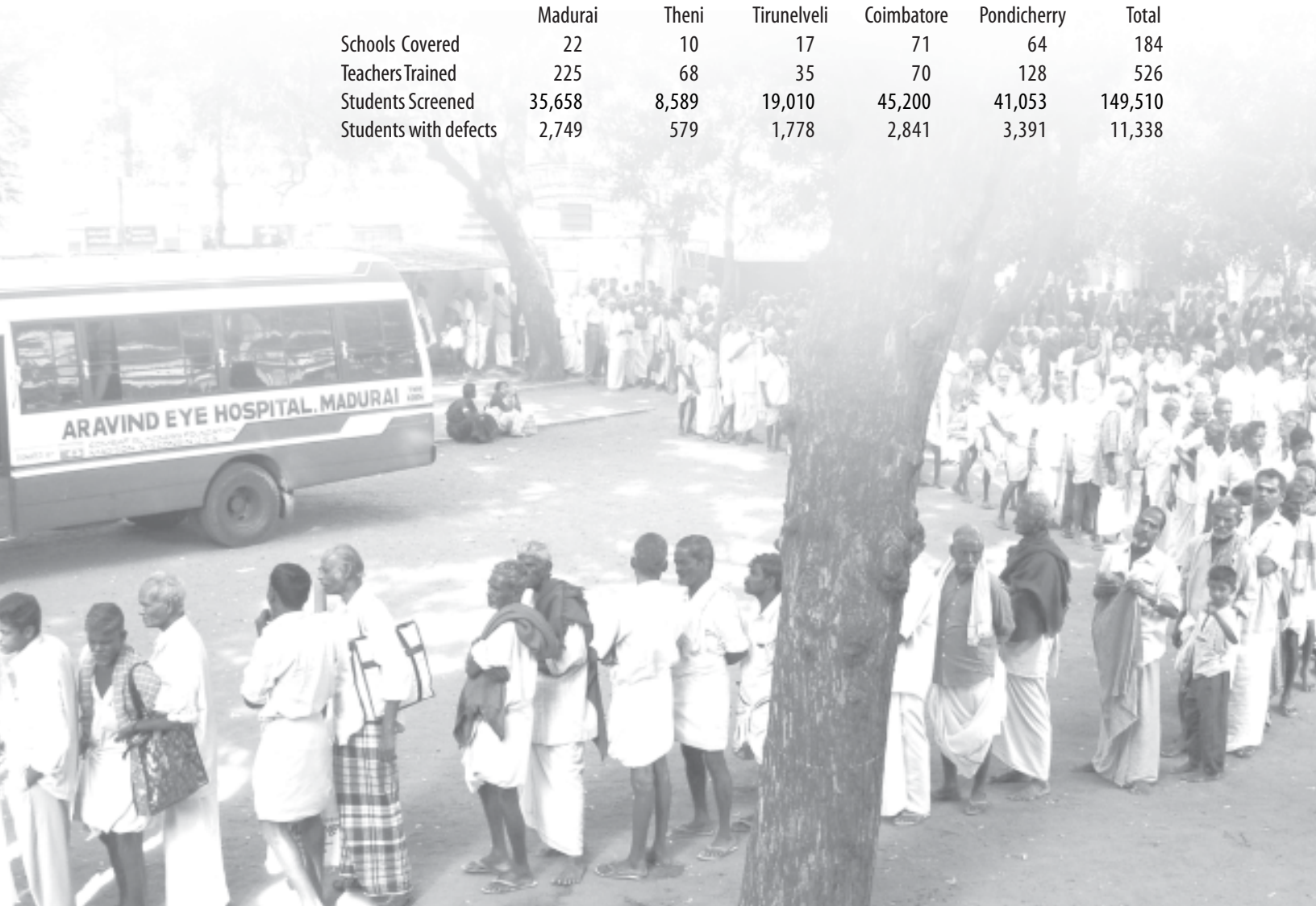


OUTREACH PERFORMANCE 2004

SPONSOR	CAMPS	OUT PATIENTS	CATARACT	IOL	OTHERS	TOTAL
Lions Clubs	417	142,779	421	30,707	888	32,016
Rotary Clubs	69	24,490	87	6,049	177	6,313
Vivekananda Kendra	52	12,268	31	2,424	117	2,572
Sri Sathya Sai Organisations	36	11,682	29	2,067	63	2,159
Religious Organisations	80	31,988	84	7,468	231	7,783
Jaycees	3	1,130	6	246	6	258
Banks	6	2,817	5	349	10	364
Mills & Factories	28	17,602	48	3,620	114	3,782
DBCS	90	22,959	97	7,012	280	7,389
Educational Institutions	54	16,313	35	2,934	78	3,047
Hospitals	42	10,595	26	2,010	65	2,101
Trusts	43	16,885	49	3,384		3,560
Youth & Fans Association	23	7,787	25	1,387	41	1,453
Other Voluntary Organisations	169	55,875	121	7,915	223	8,259
Others	159	58,332	148	11,189	380	11,717
TOTAL	1,271	433,502	1,212	88,761	2,800	92,773

Eye Screening For School Children

	Madurai	Theni	Tirunelveli	Coimbatore	Pondicherry	Total
Schools Covered	22	10	17	71	64	184
Teachers Trained	225	68	35	70	128	526
Students Screened	35,658	8,589	19,010	45,200	41,053	149,510
Students with defects	2,749	579	1,778	2,841	3,391	11,338



DIABETIC RETINOPATHY INITIATIVES IN 2004

The World Health Organization estimates that 33 million Indians are diabetic and that this number is expected to reach 79 million by 2030. Worldwide there are an estimated 171 million diabetics with more than half in the developing world. While all diabetics are potentially at risk for developing diabetic retinopathy, generally around 25% develop the condition. Roughly 5% of the diabetic population has severe or vision-threatening diabetic retinopathy. Understanding the escalating nature of this problem, Aravind launched a collaboration five years ago with the Lions Clubs International, subsequently bringing the World Diabetes Foundation and Mission REACH (Government of India) into the fight against diabetic retinopathy.

LIONS ARAVIND DIABETIC RETINOPATHY PROJECT

Drawing to a close after five years, the Lions Aravind Diabetic Retinopathy Project implementation in Madurai, Theni, and Coimbatore achieved good results in addressing gaps in the health care system's capacity to deal with the condition. Initiated as a response to the low awareness across the spectrum of the dangers of diabetes with respect to vision and the lack of a systematised model for dealing with diabetic retinopathy, the project not only raised awareness but also developed models for screening, tertiary care, and training. An online deployment of the models developed and lessons learned is currently being prepared to share the benefits more broadly.



Diabetic awareness camp at Aravind-Tirunelveli on World Diabetic Day

In 2004, 42 community camps were held that screened 9,979 people, of them 3,950 were found to be diabetic, of whom 828 people



Dr.P.Namperumalsamy, Prof.M.Nagarajan, Mr.Steve Yarsan, Dr.G.P.Pokharel, Dr.Pararajasegaram, Dr.Chandrasekar Shetty and Mr.R.D.Thulasiraj at the DR project evaluation meet held at Aravind-Madurai in February

had diabetic retinopathy. The general awareness campaign distributed 34,370 pamphlets, 604 posters, 134 diabetic booklets in English, and 531 diabetic booklets in Tamil in addition to organising seminars and radio talks in observation of World Diabetic Day on November 13-14. Five large exhibitions on diabetic retinopathy were also held in the course of the year. Medical training included 4 seminars attended by 130 medical practitioners, 17 guest



Dr. V.M. Loganathan, RMC Chairman, Dr. P. Namperumalsamy, Dr. Deepak Bhatnagar, TIFAC, Mission REACH, New Delhi, Ms. Alice Crasto, Sight Savers International, Mumbai, Mr. R.D. Thulasiraj, Dr. S. Aravind, Dr. Kim and Dr. Neeraj Saxena, TIFAC, Mission REACH, New Delhi at the third RMC meeting



Dr. P. Namperumalsamy greets Dr. R. Chidambaram, Principal Scientific Advisor to the Prime Minister of India

Senior patient counsellor Ms. Arumugaselvi with a young diabetic patient at a free diabetic camp



lectures attended by 1,947 people, and 54 training of trainers programmes that was attended by 4,981 Integrated Child Development Service workers. A total of 64 patient interaction sessions were conducted and attended by 3,096 diabetics. The year also saw the completion of a three-part, three year study on Knowledge, Attitude and Practices (KAP) associated with the disorder.

TIFAC-CORE IN DIABETIC RETINOPATHY

In February 2003, Aravind-Madurai was designated as a TIFAC-CORE (Technology Information, Forecasting & Assessment Council - Centre Of Relevance and Excellence) to become a world leader in patient care, research, and training related to diabetic retinopathy. Two distinguished visitors came to Aravind on account of TIFAC-CORE: His Excellency P.S. Ramamohan Rao, Governor of Tamil Nadu to inaugurate the CORE centre, and Dr. Chidambaram, Principal Scientific Advisor to the Prime Minister of India to inaugurate the genetic wing of the centre. In addition to adding sophisticated equipment and establishing fellowship and certificate courses, 2004 saw the launch of a certificate course in Fundus Fluorescein Angiography and Ultrasonography. The development of a Ph.D programme is slated as well. Under this initiative, research programmes exploring the genetics of the disease have been launched in addition to clinical and basic research. The programme has also stimulated exploration into the feasibility of manufacturing lasers and ophthalmoscopes in addition to establishing important collaborations with Harvard University and University of Wisconsin-Madison.

WDF ARAVIND DIABETIC RETINOPATHY PROJECT

The generous grant of the World Diabetes Foundation, patronised by Princess Benedikte of Denmark, allowed Aravind to make continuing advances into the management of diabetic retinopathy, including expanding the reach of the project in Tirunelveli with a scheduled expansion to Pondicherry in January 2005. In addition to increasing the availability of services for diabetic retinopathy, the grant has also allowed an image reading and grading centre to be set up which can receive fundus images from remote



At the WDF Diabetic awareness exhibition at Madurai

locations and allow a specialist to transmit treatment recommendations from Madurai. Satellite connectivity has been provided through the support of the Indian Space Research Organisation. ISRO also contributed the equipment for a mobile screening van greatly reducing the cost of the endeavour. In addition, the project is also funding a year long population based epidemiology study in Theni that will provide key information on the prevalence of diabetic retinopathy to aid in evaluating methods of

enhancing treatment programs.

The project has also allowed Aravind to continue its progress in expanding awareness and treatment of the condition. In Tirunelveli district, 1 press meeting, 6 seminars, 9 exhibitions, and 24 patient interaction sessions were held reaching well over 1,500 doctors, paramedics, patients and others. In 2004, a total of 40,613 patients have been screened for diabetes in 238 camps with 7,951 diabetics found, 850 of whom had diabetic retinopathy. Awareness creation was done through distribution of 74,298 pamphlets, 1,670 posters, and 549 booklets while conducting press meetings, seminars, and diabetic fairs and diabetic retinopathy camps.

Mr.Muralikrishnan, Dr.Anil Kapur, Vice Chairman, WDF, Dr.P.Namperumalsamy, HRH.Princess Benedicte of Denmark, HE.Mr.Michael Sternberg, Danish Ambassador to India and Mr.Pierre Lefebvre, WDF Chairperson at the press meet at LAICO



AWARDS & ACCOLADES



The Governor of Tamil Nadu H.E. Ramamohan Rao presented the 'Aram award' to Dr. G. Venkataswamy along with a cash prize of 1 lakh rupees



Dr. G. Venkataswamy and Dr. N.V. Prajna at the Royal College of Physicians in London with Ms. Joyce Mein at the convocation

நயனாடு நன்றி புரிந்த பயனுடையார்
பண்புரா ராடும் உ_கை

Nayannodu nandri purindhu payanudaiyaar
Panpu paraattum ulaghu - THIRUKKURAL (994) THIRUVALLUVAR

The world celebrates the ways of those good souls who work justly and with gratitude for all.

2004 brought with it a record number of awards and special recognitions for Dr. G. Venkataswamy, Founder-Chairman of Aravind, as well as for other distinguished members of the team.

The Shriram Group of Companies instituted an annual award called - **The Aram Award** to be given to a contemporary individual who exemplifies the teachings of the ancient Tamil poet-saint, Thiruvalluvar. They chose **Dr. G. Venkataswamy** to be the very first recipient of the award, in recognition of the life of service he has led, and in honour of the institution he created which today is being increasingly looked upon as an example by the nation.

Other Honours for Dr. G. Venkataswamy Founder-Chairman of the Aravind Eye Hospitals in 2004:

Presented with the **Lifetime Achievement Award** by H. V. Desai Eye Hospital, Poona Blind Men's Association, in April 2004.

Induction into the '**Ophthalmology Hall of Fame**' of the American Society of Cataract and Refractive Surgery (ASCRS) in recognition of his contributions to the realm of modern ophthalmology, May, 2004.

Awarded an **Honorary Fellowship of the Royal College of Ophthalmologists** at the Royal College of Physicians in London, in recognition of his contribution to the war against blindness and the continuing work of the Aravind Eye Care System.

Selected as one of the world's most **Outstanding Social Entrepreneurs** by the Schwab Foundation for Social Entrepreneurship, Switzerland. This foundation identifies, selects and provides recognition for outstanding social entrepreneurs around the world whose work has significantly improved people's lives, building a strong fellowship among them.

Presented with the **Vizhi Kaavalar Award** by MFJ. Ln. Parimala Raju, Dist. Governor 324-A3, Lions Clubs International on September 23 at a Lions Club Meeting held at Aravind Eye Hospital, Pondicherry.





*Dr. P. Namperumalsamy receiving
Dr. R. V. Rajam Award*

Dr. P. Namperumalsamy, Director, Aravind Eye Care System was awarded **Dr. R. V. Rajam Award** by the National Academy of Medical Sciences, New Delhi.

Dr. M. Srinivasan was given the **Dr. Ishwarachandra Silver Jubilee Award** by Vidarbha Ophthalmic Society, Nagpur, Maharashtra on October 30.



*Mr. R. D. Thulasiraj receiving the IAPB
Award*

Mr. R. D. Thulasiraj, Executive Director, LAICO was conferred with the **Vivekanand Ratna Award** in Miraj, Maharashtra, on June 6 in recognition of his contribution to the art and science of eye care services. The honour was jointly conferred by the Lions Comprehensive Eye Care Foundation, Lions Club of Miraj, Sangli district branch of the National Association for the Blind (NAB) and the Faculty of Lions NAB Eye Hospital, Miraj. The citation also refers to the unflinching support and guidance he has extended to the Lions NAB Eye Hospital at Miraj. The award included Rs. 51,000 in cash, which Mr. R. D. Thulasiraj donated to the Aravind Medical Research Foundation.



*Mr. R. D. Thulasiraj receiving the
Vivekanand Ratna Award at Miraj*

He was also presented with the **Regional Achievement Award 2004** in recognition of his contribution to the management of eye care programmes in the South East Asia Region. This award recognises the contribution of LAICO and Aravind in improving the functioning of several eye hospitals in this region. The award was presented at the 7th General Assembly of the IAPB in Dubai, by Dr. Serge Resnikoff, Head of the Prevention of Blindness-WHO.

As a special recognition, the President and Council of the Royal College of Ophthalmologists admitted **Dr. N. V. Prajna** as a Fellow and was presented with a **FRCOphth** (Fellow of Royal College of Ophthalmologists, London).

*Dr. R. Venkatesh with
Dr. G. Venkataswamy*



The American Academy of Ophthalmology and the European Society of Ophthalmology (SOE) gave the **"Best of Show"** award to **Dr. R. Venkatesh's** video on 'High-Volume, High Quality, Cost-





Dr. Ilango receiving the Mahashde Award

Effective Cataract Surgery for the Developing World: Sutureless ECCE'. The committee selection is based on enduring educational value, technical quality, and general interest to members.

Dr. Ilango, Medical Officer, Low Vision Clinic received the **Mahashde Award** along with a citation and medal, for best paper at the All India Ophthalmology conference held in Varanasi. The award-winning paper was entitled 'Cost Effective Sustainable Low Vision Service in the context of Vision 2020'. The award was presented by the Vice Chancellor of the Varanasi University.

Dr. P. Sathyan was awarded the **CIPLA Award** at the Tamil Nadu Ophthalmic Association (TNOA) held in August at Tirunelveli.

Mr. R. Meenakshi Sundaram was presented the '**Vocational Service Excellence Award**' by the Rotary Club on October 14. The citation was presented by the District Governor (Rotary International 3000) Rtn. Elangovan.

Mr. P. Manikandan, Microbiologist, Aravind-Coimbatore was awarded the **Best Paper of the session** for his research paper titled '**Subconjunctival infection by *Dirofilaria Repens* - A Case Report**' in 52nd Annual Conference of the Tamil Nadu Ophthalmic Association held at Tirunelveli on August 13-14.

Ms. Pavithra Krishnan's short film 'Infinite Vision' on Dr. G. Venkataswamy's life and the story of Aravind won the **Best International Documentary Award** at the New York International Independent Film and Video Festival.



Mr. R. Meenakshi Sundaram receiving the Vocational Service Excellence Award

Ms. Pavithra Krishnan and Ms. Ayla Gustafson at the New York Film Festival



EDUCATION AND TRAINING PROGRAMMES

ARAVIND POSTGRADUATE INSTITUTE OF OPHTHALMOLOGY POSTGRADUATE TRAINING IN OPHTHALMOLOGY

In affiliation with,

- Dr.MGR Medical University, Chennai
 - Diploma in Ophthalmology (DO) - Eight candidates
 - MS in Ophthalmology (MS) - Six candidates
- National Board of Examinations, New Delhi
 - Diplomate of the National Board (Dip.NB) - Five candidates

Dr.G.Natchiar, Dr.Minu Mathen and Dr.Haripriya with a batch of IOL Short term trainees



FELLOWSHIP PROGRAMMES

The fellowship programmes are designed to enable ophthalmologists improve their professional skills through advanced training in a specific ophthalmic subspecialty of their choice.

SHORT-TERM COURSES FOR PRACTICING OPHTHALMOLOGISTS

IOL Microsurgery Training Programme

During 2004, a total of seventy-three ophthalmologists were trained at Aravind-Madurai, Aravind-Coimbatore and Aravind-Tirunelveli.

Lasers in Diabetic Retinopathy Management

This course is now offered with support from the Lions SightFirst Programme at Aravind-Madurai and Aravind-Coimbatore. Sixty ophthalmologists were trained in the year 2004. Of them, fifteen candidates underwent training under the TIFAC-CORE initiative.

Diagnosis and Management of Glaucoma

The Aravind-Zeiss Centre of Excellence in Glaucoma, at Aravind-Tirunelveli, Aravind-Madurai and Aravind-Coimbatore trained thirty-five ophthalmologists in 2004.

Dr.P.Vijayalakshmi with Paediatric Ophthalmology Fellows



University of Michigan Business School team at Aravind

A team of five MBA students from the University of Michigan Business School was here for a three-week period to develop the framework for a Career Development and Performance Management Programme for doctors at Aravind. The team came up with a detailed proposal for implementation that included sending out individualised monthly performance data (both qualitative and quantitative) to enable self-tracking and semiannual discussions with a senior staff in the department. Staff empowerment, more equitable distribution of responsibility, turnover reduction, management development and coherent goal-setting some of the potential benefits of this programme.

Grand Rounds Sessions at Aravind Eye Hospitals

Using the Tele-ophthalmology network, postgraduate students in ophthalmology, fellows and medical officers across Aravind Eye Hospitals at Madurai, Tirunelveli, Coimbatore and Pondicherry have a fortnightly Grand Rounds session where difficult and interesting cases are discussed. Quite often this forum is used to discuss cases with Wilmer Institute of Johns Hopkins University, Baltimore, USA. Every other week, the facility is used for Journal club meets and guest lectures.

Membership of Royal College of Ophthalmologists (MRCO) Examination October 11–15

This year, Aravind achieved 100% pass results in MRCO Examination. Dr.Prajna, who is in charge of the postgraduate education at Aravind, has been made a MRCO Examiner.

Aravind ORBIS Paediatric Ophthalmology Learning and Training Centre (POLTC)

Prevalence of childhood blindness in India is estimated to be 5 times that of the developed world. There are no adequately trained personnel and training institutes to tackle this problem currently. To address this, ORBIS International is supporting eye care programmes in setting up comprehensive paediatric eye care services across the country. Aravind Eye Care System is collaborating with ORBIS International to become an international training and learning centre to offer comprehensive training programmes in paediatric ophthalmology services. The main objective of this initiative is to increase the trained manpower in all categories of paediatric eye care services. This is a three year project by the end of which 77 personnel will be trained.

In 2004, four ophthalmologists underwent the short term fellowship. One ophthalmologist did the long term fellowship. Four orthoptists, two anaesthetists and four community workers received specialised training in paediatric eye care services. Nineteen paramedics received training in nursing and counselling.



Dr.Khaled Tawansy with the Aravind-Coimbatore team

ORBIS-ARAVIND Special Training Programme

Aravind-Coimbatore, April 12–16
 The programme was headed by Dr.Khaled Tawansy, Director, Paediatric Retina and Uveitis Service, Children’s Hospital, Los Angeles, Dr.Tawansy shared his knowledge of ROP (Retinopathy of Prematurity) and demonstrated advanced ROP surgical skills. He delivered highly informative lecture series and held case discussions on a wide spectrum of paediatric retinal disorders.



First batch of IOL trainees from Mongolia with Dr.G.Natchiar, the Madurai IOL team and other trainees

IOL Microsurgery Training: Special programme for the Mongolian Team

Aravind-Pondicherry
 First Batch: September 1–

October 26: Five participants from various eye care institutions in Mongolia-Central University Hospital, Bolor Melmii Eye Hospital, Diagnosis and Treatment center of Uvurkhangai Aimak, General Hospital of Blugan underwent training in IOL Microsurgery under the guidance of Dr.Pamona and Dr.Nirmal. The group also attended the three day training programme in Hospital Management held at LAICO.

Second batch: November 1–December 26: Five participants from Health Science University of Mongolia, Diagnostic and Treatment Regional Centre of Hovd Aimak, General Hospital of Uvs Aimak, and General Hospital of Darkhan Uul Aimak underwent training under the guidance of Dr.R. Venkatesh.

Dr.Kalpana Narendran and Dr.G.Natchiar during the training session



Dr.G.Natchiar, Dr. R.D.Ravindran and Dr.Kalpana Narendran with the Cicendo Hospital team

OFF-SITE TRAINING

Dr.G.Natchiar, Dr.R.D.Ravindran and Dr.Kalpana Narendran attended the Asia Pacific Association of Cataract and Refractive



Surgery meeting at Bali, Indonesia. They conducted instruction courses on Small Incision Cataract Surgery (SICS) and also visited Bandung where they conducted an SICS Workshop at Cicendo Eye Hospital, Bandung. They also conducted live surgical demonstrations and training for surgeons in SICS and performed several phaco surgeries. An alumni meeting was arranged there by Dr Farida Cirlan for doctors from Bali who received training at Aravind.

OTHER VISITS

To USA

March 24–April 12

Dr.P. Vijayalakshmi visited the following leading eye care institutions in the US to enhance the Aravind-ORBIS Paediatric Ophthalmology training programme.

Wilmer Eye Institute, Baltimore

Wills Eye Hospital, Philadelphia

The Children’s Hospital of Philadelphia

Illinois Eye and Ear Infirmary, Chicago

University of Wisconsin Medical School, Madison

Jules Stein Institute, Los Angeles

During her visit she also attended the AAPOS (American Association for Paediatric Ophthalmology and Strabismus) meeting held in Washington D.C.

She was also one of the 20 invitees to the International Members and International affairs committee meeting. She met with Ms.Sally Whitton, Ms.Andrea and Dr.Eugene Helveston of ORBIS.

Dr.M.Srinivasan with Dr.Jack Whitcher in Ethiopia



To Ethiopia

September 28–October 9

Dr.M.Srinivasan was invited to visit Ethiopia under the trachoma prevention and treatment project of Francis I Proctor Foundation, University of California, San Francisco(UCSF).

The main purpose of his visit was to:

- Observe any treatment or prevention methods for corneal ulcers in the field and local health centres.

Dr.Kim and Dr.Chandramohan with TOPCON officials



- Work closely with medical students from UCSF to give them an exposure to the field of ophthalmology, with special emphasis on cornea.
- Provide any objective suggestions or insight to the trachoma treatment monitoring programmes in Ethiopia.
- Visit the Menelik II University Eye Hospital in Addis Ababa to observe eye care infrastructures and programmes.

In Japan

October 31 – November 5

Dr.Kim and Dr.Chandramohan visited TOPCON, Japan to get trained in the new TOPCON OFFISS microscope.

They also visited King George Hospital, Singapore.

INTERNAL CAPACITY BUILDING - SPECIALITY TRAINING

Medical Officers at Aravind Eye Hospitals are sent to premier ophthalmic institutes in the US for exposure to the latest technology and diagnostic methods. These trips are timed around the annual meeting of the American Academy of Ophthalmology, which they all attend.



Dr. Manju Pillai with Dr. B. Thomas Hutchinson, Ophthalmic Consultant, Boston



Dr. Manoj with Dr. Lawrence Yannuzzi, Director, Retina & Vitreous Services, New York



Dr. Meenakshi with Dr. Monte Mills, Chief, Paediatric Ophthalmology Department, Philadelphia

DR. MANJU R PILLAI, Consultant, Glaucoma Services, Aravind-Madurai visited Wilmer Eye Institute, Baltimore. She learnt a lot more about various techniques and procedures in glaucoma under the guidance of Dr. Harry Quigley, Dr. David Freidman and Dr. Henry Jumpell. At the Greater Baltimore Medical Centre, she observed many filtering procedures and combined surgeries with releasable sutures, performed by Dr. Alan Robin. Dr. Manju Pillai visited several well-known institute and met with various specialists. She also visited University of Maryland and observed Dr. E. Higginbotham and Dr. Solvo at work.

She also met Dr. B. J. Shingledon, Dr. R. Bellows, Dr. T. Hutchinson and Dr. Cynthia Mattox at the Ophthalmic Consultants of Boston and Cap Cod Surgery and Laser Centre and New England Medical Centre. At the AAO Annual Meeting in New Orleans, she attended many lectures on cataract and glaucoma. She also attended a glaucoma conference on endoscopic diode laser cyclophotocoagulation and had a chance to observe gonio synechiolysis and bleb revision, in addition to many filtering surgeries, combined surgeries and anterior chamber shunt implants.

DR. MANOJ, Consultant, Retina Clinic, Aravind-Pondicherry visited Wilmer Eye Institute and Johns Hopkins School of Medicine, Baltimore and spent two weeks observing various eminent ophthalmologists at work. He observed the surgical setup there and watched eminent retinal surgeons like Dr. Peter Campochiaro and Dr. Julia Haller operate, including the newer 25-gauge vitrectomy procedures. He also attended the Fluorescein conferences that are conducted there weekly by Dr. Neil Bressler and Dr. Andrew Shachet, and also participated in the weekly grand rounds conducted by Dr. Morton Goldberg.

Dr. Manoj also visited the Retina Vitreous Macula Associates of New York. He had the opportunity to interact and learn from eminent retinal specialists like Dr. Lawrence Yannuzzi, Dr. Richard Spaide, Dr. Slackter and Dr. Yale Fischer, especially in diagnosis and treatment of newer age related macular degeneration subtypes. He also had the opportunity to visit Dr. Abramson who is a renowned ocular oncologist at the Memorial Sloan Kettering Cancer Institute (Cornell University) and observed him treating patients with retinoblastoma, and other ocular malignancies. In New York, at the Columbia University Medical Centre, he had the opportunity to observe Dr. Stanley Chang perform complicated retinal detachments and macular surgeries.

DR. MEENAKSHI, Consultant, Paediatric Ophthalmology and Strabismus, Aravind-Tirunelveli visited the Children's Hospital of Philadelphia (October 28–November 14). There she had the opportunity to meet and observe ophthalmologists like Dr. Monte Mills, Chief- Paediatric Ophthalmology Department at Children's Hospital, Philadelphia, Dr. David Hunder, Chief- Paediatric Ophthalmology at Children's Hospital, Boston and Dr. Joseph Calhoun at Wills Eye Hospital, Philadelphia. During her stay she had the opportunity to observe various strabismus surgeries and different management aspects of Squint and Amblyopia. Dr. Meenakshi also delivered a guest lecture for fellows and residents of Children's Hospital Philadelphia on "Practising Paediatric Ophthalmology in South India".



Dr.Sundaresh with Dr.David Gamm

DR.SUNDARESH, Junior Consultant Paediatric Ophthalmology and Strabismus, Aravind-Madurai attended a three month observership programme at the University of Wisconsin from August 1- October 22 under the ORBIS training programme.

The main objective of the observership was to build a better understanding of the latest developments in the field of paediatric ophthalmology and strabismus and also to observe the different management methods and concepts for various eye problems in children. The main focus was on nystagmus, paretic squints and conditions like PHPV. Dr.Sundaresh also had the opportunity to spend time with pioneers in the field of paediatric ophthalmology and strabismus like Dr.Thomas D.France, Dr.Burton Kushner and well known orthoptists like Leslie France and Jachie Shimko. He spent time with Dr.Marlyn Miller seeing patients in an out patient clinic. Dr.Sundaresh also attended a couple of lectures by Dr.Gunter K.Vonnoorden in the clinical care meeting of the Department of Paediatric Ophthalmology, Iowa.



Dr.Manohar Babu with D.C.Stephen Foster

DR.B.MANOHAR BABU, Consultant, Aravind-Coimbatore, visited Bascom Palmer Eye Institute in Miami, Florida as a fellow and observed the work of their uvea consultant Prof.Janet Davis M.D. He also visited the Massachusetts Eye and Ear Infirmary at Boston, Massachusetts, as a fellow and worked under Prof.Stephen Foster M.D, Consultant in Uveitis.

DR.MINU MATHEN AND DR.HARIPRIYA, Consultants, Cataract Clinic, Aravind-Madurai had the opportunity to visit various high volume cataract facilities in the US.

They were with Dr.Howard Fine at Oregon Eye Associates, observing the out patient clinic and operating room. They conducted instruction courses and presented scientific papers at the ASCRS (The American Society for Cataract and Refractive Surgery) meeting at San Diego. At San Francisco Dr.Minu Mathen spent the day with Dr.Bill Stewart and Dr.Bill Good at the California Pacific Medical Centre, and observed them at work. Dr.Minu Mathen, Dr.Sasikumar and Dr.Haripriya spent a day with Dr.David F Chang at the El Camino Surgery Centre, San Jose.

In Boston, they visited Dr.Brad J Shingleton at Ophthalmic Consultants of Boston, and the Massachusetts Eye and Ear Infirmary where they met some of the residents who visited Aravind. They met various faculty there including the Residency Programme Coordinator Dr.Lowenstein.



Dr.Minu Mathen and Dr.Haripriya with Dr. Howard Fine

DR.SASIKUMAR DEVARAJ, Junior Consultant, Retina Vitreous Services, Aravind-Coimbatore visited USA and UK for a little over three months. In Cleveland, he visited Retina Consultants at the Cole Eye Institute. He also met phaco surgeons Dr.Krishnan and Dr.Babu. He observed Dr.David Chang's work in his hospital in San Jose, and also visited Stanford University and Hospital. In Los Angeles Dr.Devaraj met with Dr.Sean Ianchaler, Assil Sinskey Eye Institute and also Dr.Michael S.Berlin, a glaucoma specialist. In Atlanta he visited the Emory Clinic where he met Dr.Grossni Klaus. He then visited the Wilmer Eye Institute, Johns Hopkins in Baltimore. Before returning to India he spent a week in London at the Oxford University Hospitals observing their general ophthalmology and retina clinics.



Dr.Minu Mathen and Dr.Sasi kumar Devaraj with Dr.David Chang

LIONS ARAVIND INSTITUTE OF COMMUNITY OPHTHALMOLOGY

Now in its twelfth year of operation, Asia's first international training facility for the propagation of sustainable and effective models of eye care continues to reach out to the developing world by sharing its expertise ever more broadly.

I. CONSULTANCY FOR CAPACITY BUILDING

Consultancy for capacity building is a major activity at LAICO. This is done in collaboration with INGOs like Lions International, Sight Savers International, CBM International, IEF, ORBIS International, WHO and Seva Foundation to develop eye hospitals supported by them into centres of excellence with sustainable eye care programmes.

The capacity building process consists of three phases:

- First a **needs assessment visit** is made to the hospitals by a team from LAICO.
- Following that, a multidisciplinary team from the hospitals attend a six day **capacity building workshop** at LAICO to develop various strategies to enhance the quality and effectiveness of eye care services provided.
- Six months later, the LAICO-Aravind team makes a **follow-up visit** to provide further support to implement their action plan.

All the partnering hospitals send a monthly performance report to LAICO with information to gauge the effect of the capacity building process and to plan for further support. LAICO currently partners with 175 eye hospitals located across India, South East Asia, Latin America and Africa.

NEEDS ASSESSMENT VISITS IN 2004

In Malawi, Africa

May 24–30

Mr.Keerti Bhusan Pradhan, Mr.R.Meenakshi Sundaram, Mr.Ganesh Babu and Dr.Tiruvengadakrishnan from LAICO and Aravind Eye Hospitals made a needs assessment visit to the two Lions SightFirst Eye Hospitals in *Lilongwe* and *Blantyre*.

Both the hospitals were built through funding from Lions Clubs International Foundation (LCIF) under the SightFirst Programme with leadership and support from local Lions Clubs. The hospitals are run and managed by the Government within the Central Hospital campuses. Both facilities stand out in terms of size and the quality of infrastructure.

Mr.Ganesh, Mr.R.Meenakshi Sundaram, Mr.Keerti Bhusan Pradhan and Dr.Tiruvengadakrishnan with SightFirst Technical Advisor Dr.Divyesh Shah, staff and board members of Lions SightFirst Eye Hospital in Blantyre

In Bangladesh

August 2–13

Dr.Manoranjan Das, Mr.R.Meenakshi Sundaram and Mr.S.Saravanan visited Bangladesh to carry out development needs assessment of three hospitals supported by ORBIS Bangladesh. They spent time in the



ORBIS office in Dhaka for planning and consolidation, and later visited the hospitals in Khulna, Dinajpur and Moulovibazar.

In Orissa and West Bengal, India

SightFirst Advisory Committee of LCIF has approved funding for seven Lions Eye Hospitals in India and has directed LAICO to train them in building their capacity for efficient utilisation of the funds and the hospital services.

To assess the needs of these hospitals, LAICO faculty, Mr.P.Rajendran and Mr.Ganesh Babu, along with the Lions Technical Advisor Dr.Divyesh Shah, visited five Lions Eye Hospitals in Jamalpur, Katwa, Durgapur, Raniganj and Bankura in West Bengal (October 10–11).

Mr.Muralikrishnan visited Lions Eye Hospitals in Arambagh and Kalna in West Bengal and Mr.Keerti Bhusan Pradhan visited Lions Eye Hospitals in Bargarh and Bhubaneswar in Orissa (November 29–December 4).

CAPACITY BUILDING WORKSHOPS IN 2004

The main focus of the workshops is to help the participating hospital teams to develop a vision for their organisations and to help them translate the vision into time bound strategies. The workshop exposes the participants to different dimensions of eye care delivery such as service marketing, quality assurance, and financial viability which are the foundations of an effective eye care delivery system.

MANPOWER & MANAGEMENT DEVELOPMENT WORKSHOPS/VISION BUILDING WORKSHOPS

**For Lions Eye Hospitals from Maharashtra, Orissa, Uttar Pradesh and West Bengal
March 15–20**

Participants of the Manpower & Management Development Workshop with Dr.G.Venkataswamy



Participating hospitals:

1. Lions Binay Khedia Eye Hospital, Purulia, West Bengal
2. Angul Lions Ophthalmic Kendra, Angul, Orissa
3. Lions Club of Renukoot Eye Hospital, Renukoot, Sonebhadra, Uttar Pradesh
4. Lions Club of Andal Eye Hospital, Andal, Burdwan, West Bengal
5. Lions Rural Eye Hospital, Islampur, Maharashtra
6. Late Ramvilas Kisanlal Lahoti Lions Eye Hospital, Karad, Maharashtra



SightFirst Technical Advisors Dr.Jatin Shah, Dr.Ashok Choudry, Dr.I.S.Roy and Dr.Chandra Shekar Shetty with LCIF Asia Program Co-ordinator Mr.Joshua Friedman at LAICO

LCIF Asia Program Co-ordinator Mr.Joshua Friedman and Sight-First Technical Advisors Dr.Jatin Shah, Dr.Ashok Choudry, Dr.I.S.Roy and Dr.Chandra Shekar Shetty attended the last two days of the workshop and provided each of the participating hospitals with feedback on their action plans.

For Eye Hospitals from Bolivia and Bangladesh

March 24–30

Dr.Julio, a Spanish ophthalmologist deeply involved in community service projects, has been volunteering for over a decade in the mountains of Bolivia. In February he visited Aravind for the first time, and, learning of LAICO's capacity-building and consultancy services, began to dream of bringing a team of Bolivians to Aravind to improve eye care services in their native land.

The Islamia Eye Hospital located in Dhaka, Bangladesh was founded in 1960 by the well known philanthropic entrepreneur MA Ispahani. When he died, the management of the hospital was entrusted to a Board of Directors. Ms Zahida Ispahani, an energetic person with a quick mind and boundless enthusiasm, stepped forward in the role of Advisor. She quickly focused her attention on increasing the hospital's productivity. With assistance from Seva Foundation they were offered the opportunity to undergo a capacity building exercise with LAICO. A needs assessment team from Aravind visited them in October 2003.

The capacity building workshop was attended by a team consisting of six members from Bolivia and Spain, including Dr.Julio, and another team from Bangladesh, headed by Ms.Zahida Ispahani. The Bangladesh team consisted of the Board of Directors and key members of the hospital staff . The team from Bolivia and Spain also

observed several clinical and non-clinical procedures for High Volume and High Quality cataract surgeries.

For Lions SightFirst Eye Hospitals in Lilongwe and Blantyre

July 6–30

Lions SightFirst Eye Hospitals in Lilongwe and Blantyre came to LAICO with six key staff from each hospital to undergo a four weeks capacity building training

Participants at the inauguration of the MMDP workshop for Bolivia and Bangladesh





Participants of the capacity building workshop for Malawi Hospitals

with management development, vision building and skill development training sessions.

During the training the participants were exposed to various systems and procedures at Aravind Eye Hospitals. There was a two day workshop on standardisation of the clinical and non-clinical protocols for their hospitals designed and developed by the participants.

For ORBIS supported Hospitals in Bangladesh

September 9–15

Participating hospitals:

1. Khulna BNSB Eye Hospital, Khulna, Bangladesh
2. Moulovibazar BNSB Eye Hospital, Moulovibazar, Bangladesh
3. Gausul Azam BNSB Eye Hospital, Dinajpur, Bangladesh

For Lions Eye Hospitals in West Bengal

November 29–December 4

Participating hospitals:

1. Arambagh Lions Eye Hospital, District Hooghly
2. Bankura Lions Eye Hospital, Bankura
3. Jamalpur Lions Eye Hospital, District Burdwan
4. Lions Club of Katwa Eye Hospital, District Burdwan
5. Kalna Lions Eye Hospital, District Burdwan

Mr.S.Saravanan, Dr.Minu Mathen, Ms.Nagalakshmi, Ms.Selvarani with the Bolivia team in Santa Cruz

FOLLOW-UP VISIT TO BOLIVIA

Following the workshop at LAICO, a capacity building project for the eye department was proposed in collaboration with LAICO. The



objective of the project was to help develop the eye department at Hospital Primero De Mayo, Santa Cruz, Bolivia. The project aimed at providing an efficient and cost-effective system that would provide high volume and good quality eye care services that would be financially viable. The project would provide the necessary clinical and management training to the hospital personnel.

In November, Mr.S.Saravanan, faculty from LAICO, Dr.Minu Mathen, Consultant Ophthalmologist, Ms.Nagalakshmi, Ms.Selvarani, operation theatre nurses from Aravind-Madurai visited Bolivia to help the hospital implement the strategies and action plan developed during the workshop. This was achieved through surgical demonstration, streamlining patients flow in operation theatre and out patient department and establishing systems and procedures to support the above activities. A total of 63 cataract operations and 6 other surgeries were performed, of which the team from Aravind did 18 and the local team performed the remaining. The various systems in the out patient department and operation theatre were standardised. The team assessed the surgical procedures and monitoring and quality control management systems were set in place. Information system in out patient department, wards, operation theatre and systems in inventory management were introduced. The entire work was achieved through the combined effort of the staff of Hospital Primero de Mayo and the LAICO team.

II TRAINING

LAICO offers management training for all cadres of eye care personnel. Various courses were conducted throughout the year with the flagship courses being the Management Priorities in Eye Care Delivery intended for the Heads of Eye Hospitals and the Management Training for Eye Care Programme Managers which draws participants from various ministries as well as from INGOs.

MANAGEMENT TRAINING IN EYE CARE DELIVERY

Management Priorities in Eye Care Delivery

January 18–24

*Participants of the course on Management
Priorities in Eye Care Delivery*



This course is designed to sensitise and create a deeper understanding and appreciation of the management issues in leading an eye hospital. There were twenty-four participants of whom thirteen were from India and the other eleven came from Indonesia, Peru, Nepal, Kenya, Ecuador and Fiji.

Prof.Fred Munson,
Prof.G.Balasubramanian,
Dr.G.V.S.Murthy, Dr.Nirmala
Murthy, Mr.D.Nagarajan and
Ms.Cindy Harrison were the
guest faculty.

Management Training for Eye Care Programme Managers

February 2–13

This is another flagship international course providing management training for eye care programme managers. In this two-week course, the first week is designed to give an overview of blindness and a good understanding of the major eye diseases in terms of the magnitude, clinical manifestation, intervention strategies, resources required, etc. This is followed by a one week module on programme development, implementation, monitoring, managing the finances, etc. In this course there were a total of twenty-one participants of whom four were from India and the remaining seventeen came from Indonesia, Uganda, Nigeria, Tanzania, South Africa, Afghanistan, Bangladesh, Nepal, Cambodia, Ecuador and USA.

The group consisted of very active and enthusiastic learners who were eager to put into practice what they had learned here. The group came up with several ideas like forming an alumni or a network to share ideas and to continue learning. Soon there is a plan to start a 'list serv' to keep the network intellectually active. The guest faculty for this course included Dr. Steve Miller, Mr. Nagarajan, Dr. Pararajasegaram, Dr. G.P. Pokharel, Dr. Nirmala Murthy and Mr. Shanmuganathan.

Short term course on Management Training and Systems Development for Hospital Administrators

October 1–30

One month training programme for personnel involvement in management and administration of eye hospitals was introduced in the year 2000. This course is designed to give exposure and training in the best practices for day-to-day operations management in an eye hospital. Each student is guided to develop and take back a detailed action plan to implement the new ideas and concepts learned in the course.

Participants of the Management Training for Eye Care Programme Managers at a 'Culture show' evening at LAICO



Eleven candidates from India, Bangladesh, Nepal, Afghanistan and China participated. ORBIS, India supported participants from their partner eye hospitals and made a request to extend the course by one month to enable their candidates to gain more practical exposure. Prof. Rajan Mitter, IIM, Calcutta was here (October 25–26) to observe and discuss systems and procedures at Aravind and to handle sessions for this course, and also to discuss and plan ways to improve the course.

TRAINING IN COMMUNITY OUTREACH

Certificate Course on Community Outreach and Social Marketing of Eye Care Services

Till date almost 160 candidates have been trained under this programme. The programme has been very helpful to many community based eye hospitals in improving their services and increasing service utilisation in their regions. Besides the classroom teaching the participants spent most part of their time in going to the community and camp sites and learning through observation and working alongside the Aravind staff. Two courses were held this year - 15th Batch (June 15–July 14) & 16th batch (November 15–December 13). A total of 17 students were trained in these two batches. They came from India, Nepal, Bangladesh, Fiji and Nigeria.



Mr. Kaliyaperumal with the community outreach training participants

SPECIAL COURSE ON COMMUNITY OPHTHALMOLOGY & SOCIAL MARKETING OF EYE CARE SERVICES

December 15–29

A group of 12 participants from China, Vietnam, Mongolia and Cambodia participated in this 2 week specially designed training programme. This batch of trainees were sponsored by CBM-Asia Regional Office. The objective was to orient the participants to high volume and high quality cataract and refractive error services



Participants of Special Course on Community Ophthalmology & Social Marketing of Eye Care Services

through community outreach and various other social marketing approaches to serve the community towards prevention of needless blindness.

As part of the course the participants attended the outreach camps, analysed the Theni model and learned through observation besides the class room teachings. At the end of the course the participants developed their own strategies and action plans, keeping in mind their hospitals. The action plan was presented by the participants and critically evaluated by the LAICO faculty for finalisation. Out of the 12 participants, 10 were Ophthalmologists heading eye care organisations in the above countries. The other two candidates were Programme Co-ordinators from CBM & Amity Foundation, China.

TASK-ORIENTED TRAINING PROGRAMMES

Training in Instruments and Equipment Maintenance

One of the most popular courses, this course has been offered 38 times so far, inclusive of the four courses conducted in 2004. In these courses the participants acquire technical know-how through hands-on learning experience. An integral part of the training is the instrument maintenance camp conducted in a different city. At these camps, ophthalmic instruments and equipment from various eye hospitals and ophthalmologists are brought to a central location. Typically, several hundred pieces of ophthalmic instruments and equipment are repaired at these camps, thereby offering invaluable experience to the participants. In the four courses offered in 2004, thirty from India, Nepal, Cambodia, Belize and Bangladesh participated. Apart from them, two ophthalmologists were also trained.

Course in Optical Dispensing

LAICO also offers a three month certificate course in Optical Dispensing. This is in recognition of the fact that refractive error is a significant cause of blindness and the major cause of visual impairment. Thus there is an urgent need to promote refraction services and this course meets the important need of developing the required human resource. In 2004, thirteen students were trained.

Course in Clinical Supervisory Skills

Mid-level ophthalmic personnel (MLOP) are the backbone of effective eye care programmes and yet they are a neglected lot when it comes to their career development. Recognising their pivotal role in eye care, this three month course was designed. The course sharpens their clinical skills and also imparts supervisory skills to make MLOPs more effective in managing this cadre of personnel in their organisation and in co-ordinating their work. This is an IAPB sponsored course and in the year 2004, fifteen candidates were trained.

Ms.Hepsibah Jawahar, academic nursing co-ordinator, Ms.Sumathy, senior nurse and Ms.Renuka, senior refractionist with the Clinical Supervisory Skills Course participants



TRAINING PROGRAMMES IN COLLABORATION WITH ORBIS INTERNATIONAL

Comprehensive Management Training Programme for Service Providers in the Eye Care Sector

ORBIS International is collaborating with three premier eye care institutions and three premier management institutions spread across the country to implement a project on “Comprehensive Management Training Programme for Service Providers in the Eye Care Sector”. This two year project started in the month of August 2004. LAICO is one of the collaborating institutions under this initiative. The objective of this project is to increase the national capacity for training in eye care management with common curriculum across the country. The immediate target is to

- train 150 eye care professionals in management
- develop operations research capacity in six eye care programmes
- deliver evidence based eye care services addressing their community needs
- support eight eye care programmes to increase their productivity and
- develop six eye care programmes to develop their capacity to undertake advocacy activities with the respective governments to increase the eye care services and programmes.

OFF-SITE TRAINING

VISION BUILDING WORKSHOP FOR PAEDIATRIC OPHTHALMOLOGY SERVICES

H.V.Desai Eye Hospital, Pune

H.V.Desai Eye Hospital in Pune was started in 1998 by Mr.Pandya, a visionary, who, as a blind person, also runs the famed Poona Blindman’s Association and several rehabilitative services. In the year 2000, the hospital sent a team to LAICO to participate in a capacity building workshop. At the time they were performing around 2000 surgeries a year. Today that number has risen to 17,000 and they are eager to push the limits of their potential even further.

Mr.R.D.Thulasiraj, Mr.Nagarajan and Ms.Sheeladevi from LAICO, along with Mr.M.Kamalesh and Ms.Shaolini from ORBIS facilitated a two day workshop held at the hospital in Pune. It was attended by Mr.Pandya, Dr.Col.Deshpande, Medical Director and other key doctors and management staff from the hospital. The hospital received focused consultancy to develop their paediatric eye care services, which is being established through a grant from ORBIS. The entire team for paediatric care was trained at Aravind. This workshop was conducted as part of ORBIS-Paediatric Ophthalmology Learning and Teaching Centre project.



Mr. Ganesh Babu with the Sao Paulo team

Hospital Data Management Software Implementation as part of Capacity Building Brazil, January 18–31

Mr. Ganesh Babu from Aravind-Madurai visited the Department of Ophthalmology, Federal University of São Paulo - Paulista School of Medicine, Brazil in January 2004. The purpose of the visit was to implement the software developed by Aravind for data management of a cataract survey conducted by them in association with WHO. The software was developed using Epi-Info with MS Access at the back end to store the data. He worked with Dr. Solange and Mr. Rafael to train them in using the software and also make minor changes in the software to suit their requirement. During his visit, Dr. Leon Ellwein, NEI and Dr. G. Pokhrel, WHO were also there for 3 days to finalise the protocol of the study. All the changes discussed in the meeting were incorporated in the software.

SOUTH TO SOUTH COLLABORATION

Helping Vietnam's Hanoi School of Public Health in starting Hospital Management Programme



Mr. P. Rajendran with Hanoi school of public health faculty Team in Vietnam

A team of four staff from Hanoi School of Public Health and Ministry of Health visited LAICO (October 25–30). The main purpose of their visit was to get help in designing the curriculum of a course on Hospital Management which they plan to start in their country. Mr. P. Rajendran and Mr. Keerti Bhusan Pradhan, LAICO faculty helped the team design an appropriate curriculum based on the existing curriculum of LAICO and taking into consideration Vietnam's needs of such a programme. The team was also exposed to various models of hospitals to understand how they practice the management concepts in health care service towards quality and sustainability. To get a good exposure visit, the team visited Apollo Speciality Hospital and Meenakshi Mission Hospital in Madurai and Sree Chitra Tirunal Institute of Medical Sciences in Trivandrum, Kerala.

To provide consultancy support to the Hanoi School of Public Health in developing a Masters' level course in Hospital Management Mr. P. Rajendran, Faculty, LAICO visited the school from November 22–27. He helped the school design the curriculum and shared his experience in managing such a course in developing countries.

Setting up of Instrument Maintenance Training Centre in Vietnam

The Vietnam programme was organised in three phases as it was organised before for West African Countries in Nigeria in the year 2000.

Phase I consisted of three persons from Vietnam attending the basic six-week Instruments Maintenance Course. A special six week course was organised for them in June–July 2003.

In Phase II, the three trainees served as trainers for the course that followed during the period August–September 2003.

Phase III of the programme was held in the National Institute of Ophthalmology, Hanoi, Vietnam, during February–March 2004. Prof.V.Srinivasan, Mr.Poornachandran and Mr.Saravana Kumar of the Instruments Maintenance Department along with the three Vietnamese trainers who were trained at Aravind-Madurai, trained nine candidates from different parts of Vietnam. An instruments maintenance camp was organised for the Vietnam course in a hospital in Hai Pong, nearly 200 kms. away from Hanoi. Two important aspects that contributed to the success of the Vietnam course were the high level of enthusiasm of the trainees and the large number of equipment (more than 150 pieces) that were made available to the trainees for their training. Equipment came from hospitals in different parts of the country and were serviced as fast as they were received. A few private practitioners in Hanoi and Hai Pong who had heard about the course had also brought their equipment for servicing.

The project was sponsored by the Christoffel Blinden Mission office in Bangkok. The CBM representatives Mr.Rolf Mueggenburg and Mr.Wichai Sirsura who visited the National Institute of Ophthalmology, Hanoi during the last week of the course were impressed by the performance of the trainees.

Prof.V.Srinivasan, Mr.Poornachandran and Mr.Saravana Kumar with some of the trainees at Ho Chi Minh Mausoleum



III TEACHING PROGRAMMES

UNIVERSITY AFFILIATED TEACHING PROGRAMMES

In affiliation with Madurai Kamaraj University, LAICO offers the following courses.

PG Diploma in Hospital Management:

Fifteen students are undergoing this training.

PG Diploma in Optometry:

Eleven students are undergoing this one year course.

PG Diploma in Ophthalmic Assistance:

Four students are undergoing this training.

INTERNAL CAPACITY BUILDING ACTIVITIES FOR ARAVIND EYE CARE SYSTEM STAFF



Dr.Sandra Dratler and Dr.Kristi Raube with Mr.R.D.Thulasiraj and Dr.G.Venkataswamy at the internal capacity building workshop

Capacity Building of Faculty

March 22–26

Berkeley Professors Dr.Sandra Dratler and Dr.Kristi Raube were back in Madurai for a special capacity building workshop focused on developing the faculty itself. The aim of the workshop was to assess and address the concerns of instructors for LAICO's PGDHM (Postgraduate Diploma in Hospital Management) course. Special attention was given to

defining and discussing various approaches to teaching and learning and understanding firsthand the Case Method approach. Close to 20 teachers/trainers from LAICO and the Aravind Eye Hospital participated.

April 28–30

This three-day follow-up workshop was held by Dr.Rajashree P Mahatani of TISS (Tata Institute of Social Sciences, Mumbai). The workshop provided the faculty with detailed insights on the actual process of case writing. Dr.Mahatani discussed the integration of theory and practice in the learning process as well as methods of student evaluation. While the workshop was beneficial on many levels, the actual case drafts that participants were required to put together were very useful.



Dr.R.Ramakrishnan addressing the camp organisers' Meet

HRD Programmes for Camp Organisers

Aravind-Tirunelveli, May 5–16

Topics discussed were

- the core elements to be considered in selecting a potential sponsor
- sharing of personal experiences by each organiser
- a presentation on the reasons behind both the success and failure of eye camps
- planning sessions focused on standardising the procedures and quality of work in school

- eye health scheme and refraction camps.
- the potential of GIS (Global Information System) in developing publicity plans and improving productivity.

The group particularly gained from a session on the 'Aravind Market Share'. For many it was an eye-opener which presented in a comprehensive and clear manner the percentage of the burden that Aravind bears as well as an idea of how well their work is distributed geographically.

All the sessions helped to give the camp organisers a view of the 'Big Picture' and of their role in the organisation, while celebrating their successes and planning systematically for future growth.

Standardisation of Counselling Procedures

Aravind-Coimbatore

This programme was organised in two batches for counsellors across the entire system during the second week of May.

The workshop was an attempt to standardise counselling procedures within the Aravind Eye Care System. Over the years the crucial role that these staff members play in increasing the uptake of services and ensuring patient satisfaction has become increasingly clear. This workshop provided an excellent opportunity for the counsellors to pool their ideas, share their experiences and to get to know their counterparts from the other hospitals.

HRD Programme for Driving Staff

Aravind-Madurai, May 8–9

These sessions gave the staff glimpses of Aravind's history and discussed its unique work culture. The participants were also given a basic introduction to various eye diseases and in addition were given an overview of the hospital's eye banking activities, a fitting exercise considering their role in corneal retrieval. The importance of regular vehicle tune-ups was stressed and a maintenance checklist was prepared. They also discussed standard procedures for handling various emergencies such as a burst tyre or brakes failure.

*Prof.Revathi Subhalakshmi, M.A.V.M.M
Ayira Vysiar College, Madurai addressing
the driving staff*



Workshop for HRD staff across Aravind Eye Care System

Aravind-Madurai, September 3–4

It is an internal workshop organised by the HR team for human resource personnel across all branches of Aravind Eye Care System. The overall purpose of this workshop was to

- gain exposure to some important HR concepts and to understand how these can be systematised
- learn from each other's experience
- develop specific ideas that one can implement

OTHER ACTIVITIES

Career Counselling Programme for College Students

March 17

As part of the workshop on “Managerial Skills” students of LAICO’s PGDHM course along with students of the PG Dip.courses in Ophthalmic Assistance and Optometry, were handed the responsibility of planning, co-ordinating and hosting a one-day Career Counselling Programme for local college students to inform them of educational, training and internship opportunities within the Aravind Eye Care System. 218 students from seven different colleges across Madurai attended the event along with a few parents, placement officers and faculty members.

PGDOA and PGDO Students with the college students during the Career Counselling programme



ORBIS - Communication Workshop

June 28–July 1

ORBIS International organised a Public Relations and Communication Workshop for its partner institutions at LAICO. Four partner institutions including Sankara Nethralaya, Chennai and LV Prasad Eye Institute, Hyderabad along with Aravind participated in

Dr.P.Vijayalakshmi with the Communication workshop participants



the four-day workshop conducted by strategic PR and Communications experts from Bangalore and Madurai. The workshop culminated in each institution presenting a one-year PR activities plan pertaining to ORBIS-related projects. This workshop was conducted as part of ORBIS-Paediatric Ophthalmology Learning and Teaching Centre project.



Patient Counsellors demonstrating at the workshop

Rural Connectivity Programmes

IT & Eye Care Workshop for Aravind Counsellors and Village Kiosk Operators

LAICO, April 23

This one-day workshop was attended by 42 n-logue and Dhan Foundation kiosk operators from Tirupattur and Melur blocks as well as representatives from the State Bank of India, an advisor from Dhan Foundation, and patient counsellors from Aravind Eye Hospitals. The purpose of

the workshop was to explore ways of increasing the effectiveness of the rural kiosks, and also to strengthen their eye care components.

Dr.G.Venkataswamy shared his views on empowering village youth with skills and knowledge for the development of villages.

Dr.G.Natchiar spoke about the responsibilities of village kiosks and their role in society. Dr.K.Ilango spoke on common eye diseases and methods of detection while Mr.Muthuramalingam spoke on refractive errors and gave a live demonstration on ways to determine visual acuity.

A similar workshop was conducted in Aravind-Pondicherry on May 4 in which 14 kiosk operators participated.

Training Programme for Social Workers

Aravind-Pondicherry, November 24

This training programme was organised for social workers from M.S.Swaminathan Research Foundation at Aravind-Pondicherry. The objective of the programme was to create awareness among the rural population on various eye diseases.

Launch of Vision2020 e-resource

Vision 2020 e-resource centre for eye care was officially launched on April 7, the World Health Day. The website aims to be a platform for the exchange of tried and tested systems of eye care delivery and a place to share best practices and management tools to fast track the achievement of Vision 2020 goals. Developed with support from the International Eye Foundation USA, the on-line site gives the registered members complete access to all the resources on the site which include everything, from tools to estimate the magnitude of blindness to architectural plans for a model eye hospital.

EPIDEMIOLOGICAL STUDIES AND COMMUNITY PROJECTS

Epidemiology of Age-Related Eye Disease In India (INDEYE)

The Principal Investigators of the study are Dr.Astrid Fletcher from London School of Hygiene and Tropical Medicine, London and Dr.G.V.S.Murthy from All India Institute of Medical Sciences, New Delhi. Aravind Eye Hospital, Pondicherry, India is collaborating with the above institutions for the study. The study is funded by Wellcome Trust, England.

Cataract and Age Related Macular Degeneration (ARMD) are the major causes of vision impairment and blindness in the elderly worldwide. A problem that India will have to face as the elderly population is growing rapidly and will double in the next two decades. The study will cover 3000 people aged 60 years and in each centre above using random cluster sampling method. The scientific objectives



INDEYE study team in discussion at Aravind-Pondicherry

of the study are,

- to obtain precise estimates of the prevalence of ARMD
- to provide scientifically robust estimates of the prevalence of lens opacities and type of opacity using photographically documented evidence
- to examine risk factors for both ARMD and lens opacities.

In developed countries, both ARMD and cataract show

associations with low or depleted antioxidant status and higher oxidative stress like smoking, suggesting those as common aetiological factors. In the context of developing countries, exposure to indoor biomass fuels may also represent a significant risk for ARMD. So, all these factors, antioxidant levels in the individuals, smoking and exposure to biomass fuel smoke will be analysed in the study.

As part of the study Dr.Lalitha Prajna attended a training programme at Queen's University in Belfast.

The project will be the first large study in India on the epidemiology of cataract and macular degeneration. Estimates of the prevalence of ARMD in the older population will help the National and State programmes for the control of blindness and NGOs for planning the services.

Creating Access for Rural Eye Care (CARE)

Under the guidance of Dr.G.Venkataswamy, CARE project (Creating Access for Rural Eye Care) is working to create awareness in rural areas through information technology by village health workers and kiosk operators, since December, at Aravind-Pondicherry.

CONFERENCES ATTENDED

International Conference on Strengthening Global Public Health Management Training Capacity

Hanoi, Vietnam, March 8–13

(organised by the Centre for Disease Control and Prevention-Sustainable Management Development Programme, Atlanta, USA)

Mr.Keerti Bhusan Pradhan

- Capacity building through effective training at LAICO

The Marketing Mystique - Conference on Marketing in a Global India (CII Meeting)

Coimbatore, March 19

Dr.P.Namperumalsamy

- Aravind Eye Hospital - Successful model in eye care”

ORBIS Workshop on Eye Care Management

Mumbai, April 17–18

Mr.R.D.Thulasiraj participated as a resource person representing LAICO.

Marketing of Health Care Services: National Level Conference

Meenakshi Mission Hospital and Research Centre, Madurai, May 29–30

Mr.R.D.Thulasiraj

- Back to Basics – a presentation that dealt with the importance of Internal alignment for health care marketing

Course on Community Eye Health

Quito, Ecuador, August 31–September 3

Mr.R.D.Thulasiraj was invited as a guest faculty for Vision 2020 workshop for Latin-American countries.

Guest lecture at School of Public Health, Johns Hopkins University

November 2

Mr.R.D.Thulasiraj

- Cost management and strategic thinking in eye care

Global Summit Meeting of the Social Entrepreneurs

Campinas, Brazil, November 3–6

Mr.R.D.Thulasiraj participated in this meeting organised by the Schwab Foundation. The Schwab Foundation recognised Dr.G.Venkataswamy and the work of Aravind and made him a Schwab Fellow. During this summit, Mr.R.D.Thulasiraj exhibited a poster on Aravind Eye Care System and explained it to the participants. He participated as a panelist, in the discussion on ‘Leadership and Succession’. The meeting was attended by 350 participants from 40 different countries.



Dr.P.Namperumalsamy at the CII Meet



Mr. R.D.Thulasiraj at Meenakshi Mission Hospital

IAPB SEVENTH GENERAL ASSEMBLY

Dubai, September 20–24

Dr.P.Namperumalsamy

Convenor for the Instruction Course on “Update on control of blindness due to diabetic retinopathy”

- Pharmacotherapy of diabetic retinopathy to diabetic macular edema
- Screening of diabetic retinopathy - Strategies and methodology

Dr.G.Natchiar

- Cataract techniques-outcomes and cost

Dr.P.Vijayalakshmi conducted a course on ‘How to improve the outcome of congenital cataract surgery’

- Surgical management and follow up

Mr.R.D.Thulasiraj

- Comprehensive capacity building process for paediatric eye care
- How to Manage a Vision 2020 Programme

Prof.V.Srinivasan

- Instrument maintenance camp and master trainers course
- Engaging industry in instrument maintenance

Mr.S.Saravanan

- Counselling parents

IAPB Executive Committee Meeting

WHO, Geneva, February 17–18

Mr.R.D.Thulasiraj attended this meeting as its member and made a presentation of the Vision 2020 e-resources website developed by LAICO. The committee appreciated the website and acknowledged it as an excellent tool and that would complement the Vision 2020 Tool Kit. While the Tool Kit focused on planning, this website would focus on implementation. It is also a good model for sharing information. During that trip Mr.R.D.Thulasiraj also participated in an informal discussion of the Vision 2020’s Human Resource Working Group.

*Dr.P.Balakrishnan,
Dr.P.Namperumalsamy, Dr.G.Natchiar,
Mr.PKM.Swamy and Mr.Sathyamoorthy
at the IAPB Assembly in Dubai*



Launch of Vision 2020: Gujarat state chapter

Gujarat, December 18–19

Mr.R.D.Thulasiraj

- Global blindness scenario and emergence of Vision 2020 – Right to Sight
- Enhancing community participation through public-private-partners

Vision 2020 meeting

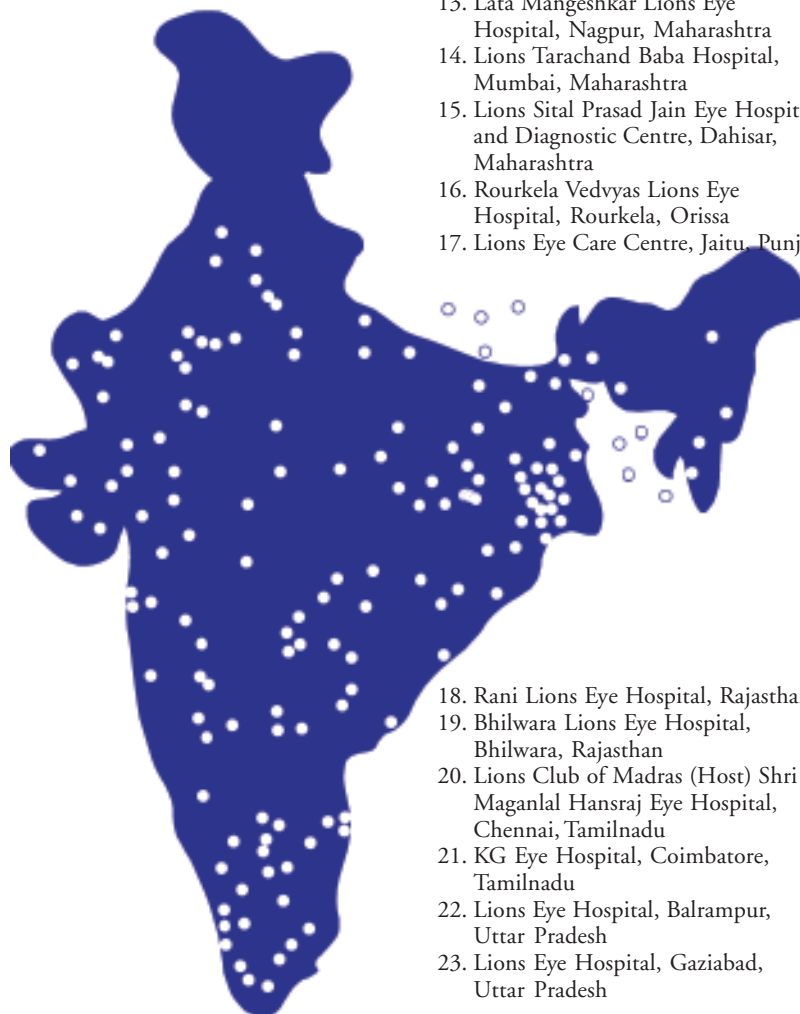
Pune, December 20–21

Dr.P.Namperumalsamy

- Aravind Vision Centres

PARTNER HOSPITALS

LAICO Currently works with 175 eye hospitals across India, SouthEast Asia and Africa for capacity building.



Lions Eye Hospitals

1. Dr. Ranga Reddy Lions Eye Hospital, Secunderabad, Andhra Pradesh
2. Lions Eye Hospital, Hyderabad, Andhra Pradesh
3. Silchar Central Lions Eye Hospital, Silchar, Assam
4. Jorhat Lions Eye Hospital, Assam
5. Lions RK Memorial Eye Hospital, Dhanbad, Bihar
6. Gujarat Blind Relief and Health Assoc. Eye Hospital, Chikhodara, Gujarat
7. Lions Eye Hospital, Koppal, Karnataka
8. Lions Eye Hospital, Chintamani, Karnataka
9. Lions Eye Hospital, Jaora, Madhya Pradesh
10. Udayachal Charitable Eye Hospital, Rajnandgaon, Madhya Pradesh
11. Lions Eye Hospital, Sagar, Madhya Pradesh
12. Labh Muni Lions Eye Hospital, Mandsaur, Madhya Pradesh
13. Lata Mangeshkar Lions Eye Hospital, Nagpur, Maharashtra
14. Lions Tarachand Baba Hospital, Mumbai, Maharashtra
15. Lions Sital Prasad Jain Eye Hospital and Diagnostic Centre, Dahisar, Maharashtra
16. Rourkela Vedvyas Lions Eye Hospital, Rourkela, Orissa
17. Lions Eye Care Centre, Jaitu, Punjab
18. Rani Lions Eye Hospital, Rajasthan
19. Bhilwara Lions Eye Hospital, Bhilwara, Rajasthan
20. Lions Club of Madras (Host) Shri Maganlal Hansraj Eye Hospital, Chennai, Tamilnadu
21. KG Eye Hospital, Coimbatore, Tamilnadu
22. Lions Eye Hospital, Balrampur, Uttar Pradesh
23. Lions Eye Hospital, Gaziabad, Uttar Pradesh
24. Maharani Laxmibai Memorial Eye Hospital, Jhansi, Uttar Pradesh
25. Sawhney Lions Eye Hospital, Rampur, Uttar Pradesh
26. Lions Eye Hospital, Alipurduar, West Bengal
27. Siliguri Greater Lions Eye Hospital, Siliguri, West Bengal
28. Dhaka Progressive Lions Eye Hospital, Narsingdi, Bangladesh
29. Jyoti Manav Seva Sansthan Hospital, New Delhi
30. Gandhi Shatabdi Mahabir Prasad Eye Hospital, Mirzapur, Uttar Pradesh
31. Panagarh Bazar Lions Eye Hospital, West Bengal
32. Lions Club of Idar and SBNSSPVM Eye Hospital, Idar, Gujarat
33. Lions Eye Hospital, Medak, Andhra Pradesh
34. Lions Eye Care Centre, Kathmandu
35. R.M. Kedia Eye Hospital, Birganj, Nepal
36. Lions Charitable Eye Hospital, The Chittagong Lions Foundation, Bangladesh
37. Lions Eye Hospital, Bangladesh Lions Foundation, Dhaka, Bangladesh
38. Lions SightFirst Eye Hospital, Nairobi, Kenya
39. Lions Eye and Blood Centre, Mombassa, Kenya
40. Lions Upkar Netra Chikitsalaya, Lakhimpur Kheri, Uttar Pradesh
41. Burdwan Lions Eye Hospital, West Bengal
42. Melvin Jones Lions Eye Hospital, Cuttack, Orissa
43. Lions Club of Imphal, Manipur
44. Lions Rajkot Race Course Eye Hospital, Gujarat
45. Lions Eye Care Trust Hospital, Dharmavaram, Andhra Pradesh
46. Lions Eye Care Centre, Dolakha, Nepal
47. Calcutta Lions Netra Niketan, Kolkatta, West Bengal
48. Howrah Lions Hospital, Howrah
49. Lions Club of Karimnagar Charitable Eye Hospital, Karimnagar, West Bengal
50. Lions Karnavati Shantaben Vishnubai Patel Eye Hospital, Karnavati, Gujarat
51. Lions Hospital and Research Centre, Khizrabad, New Delhi
52. M. Ram Reddy Lions Eye Hospital, Mahabubnagar, Andhra Pradesh
53. Lions NAB Eye Hospital, Miraj, Maharashtra
54. Mysore Race Club Eye Hospital, Mysore, Karnataka
55. Smt. Rajeswari Ramakrishnan Lions Eye Hospital, Nidadovole, Andhra Pradesh

56. Rajvalli Radharaman Lions Eye Hospital, Palakol, Andhra Pradesh
 57. Raniganj Lions M.J. Memorial Lions Eye Hospital, Raniganj, West Bengal
 58. Sadhuram Eye Hospital Charitable Trust and Postgraduate Institute of Ophthalmology, Sadhuram, Andhra Pradesh
 59. Lions Club of Secunderabad Eye Institute, Secunderabad, Andhra Pradesh
 60. Lions Club of Suryapet Eye Hospital, Suryapet, Andhra Pradesh
 61. Lions Eye Hospital, Tiruvavur, Tamilnadu
 62. Smt. Vallabhaneni Sitamahalakshmi Lions Eye Hospital, Vijayawada, Andhra Pradesh
 63. Viramgam Sarvajanic Eye Hospital, Viramgam, Gujarat
 64. Lion Chandulal Agarwal Memorial Eye Hospital, Manendragarh, Chattisgarh
 65. Lions Club of Ajmer Eye Hospital, Ajmer, Rajasthan
 66. Lions Eye Hospital, Lions Club of Mandawar, Rajasthan
 67. Lions Eye Hospital, Krishnanagar, West Bengal
 68. Abid Ali Khan Lions Eye Hospital, Hyderabad
 69. Lions SightFirst Eye Clinic, Kitwe Central Hospital, Zambia
 70. Jhargram Lions Eye Hospital, Midnapore, West Bengal
 71. Lions Club of Galsi Welfare Trust, Burdwan, West Bengal
 72. Sone Bhadra Dehri Lions Eye Hospital, Tilothu, Bihar
 73. Lions Jodhpur West Eye Hospital, Jodhpur, Rajasthan
 74. Golcha Organisation, Biratnagar, Nepal
 75. Lions SightFirst Eye Clinic, Gwanda, Zimbabwe
 76. Haldia Lions Eye Health Care & Research Centre, Durgachak, West Bengal
 77. Lions VUNM Eye Hospital, Vatva, Gujarat
 78. Lions Eye Hospital, Rewa, Madhya Pradesh
 79. Lions Club of Avadi Eye Hospital, Chennai, Tamilnadu
 80. Mar Baselios Medical Mission Hospital, Kothamangalam, Kerala
 81. Lions Rural Eye Hospital, Islampur, Maharashtra
 82. Late Ramvilas Kisanlal Lahoti Lions Eye Hospital, Karad, Maharashtra
 83. Angul Lions Ophthalmic Kendra, Angul, Orissa
 84. Lions Club of Renukoot eye Hospital, Sonebhadra, Uttar Pradesh
 85. Lions Binay Khedia Eye Hospital, Purulia, West Bengal
 86. Lions Club of Andal Eye Hospital, Burdwan, West Bengal
 87. Arambagh Lions Eye Hospital, Hooghly, West Bengal
 88. Bankura Lions Eye Hospital, Bankura, West Bengal
 89. Jamalpur Lions Eye Hospital, Burdwan, West Bengal
 90. Katwa Lions Eye Hospital, Burdwan, West Bengal
 91. Kalna Lions Eye Hospital, Burdwan, West Bengal
- LCIF/Lavelle Fund Hospital**
1. Blantyre QECH Lions SightFirst Eye Hospital, Blantyre, Malawi
- Sight Savers Supported Hospitals**
1. Rotary Netra, Vizag, Andhra Pradesh
 2. Muzaffarpur Eye Hospital, Muzaffarpur, Bihar
 3. Jamshepur Eye Hospital, Bihar
 4. CMRM Rotary Eye Hospital, Giridh, Bihar
 5. Shree Jalaram Seva Mandal Trust, Bodeli, Gujarat
 6. Nandlal Mulji Bhuta Medical Foundation, Sihor, Gujarat
 7. Kutch Vikas Trust, Bhuj, Gujarat
 8. Arpana Research & Charities Trust, Karnal, Haryana
 9. Vishwa SEVA Samiti, Sirsi, Karnataka
 10. Chattisgarh Eye Hospital, Raipur, Madhya Pradesh
 11. Bhopal Eye Hospital, Bhopal, Madhya Pradesh
 12. Venu Eye Hospital, New Delhi
 13. JPM Rotary Eye Hospital, Orissa
 14. Gandhi Mission Trust, Daspur, West Bengal
 15. Vivekananda Mission Ashram, Haldia, West Bengal
 16. Budge Budge Welfare Trust, Kolkatta, West Bengal
 17. Sri Sri Bijoykrishna Ashram Relief Society, Purulia, West Bengal
 18. Rotary Service Centre, Purulia, West Bengal
 19. Community Service Trust, Vuyyuru, Andhra Pradesh
 20. PTSJMCC, Petarbar, Bihar
 21. Khairabad Eye Hospital, Uttar Pradesh
 22. URMUL Jyoti Sansthan Nokha, Bikaner, Rajasthan
 23. Rotary Sansthan Seth Ratanchand Kanhaiyal Ranka Eye Hospital, Jaitaran, Rajasthan
 24. Shree Bhairav Netra Yagna Samiti, Pali District, Rajasthan
 25. Pali Sewa Mandal Eye Hospital, Pali-Marwar District, Rajasthan
 26. Netra Jyoti Hospital (Barmer Jan Seva Samiti Managed), Barmer, Rajasthan
 27. Dhamtari Christian Hospital, Chattisgarh
 28. Antyodaya Chetana Mandal, Bhubaneswar, Orissa
 29. Modele Bastar Integrated Rural Development Society (BIRDS), Jagadlpur, Chattisgarh
 30. LEPRO India, Regional Office, Sahid Nagar, Bhubaneswar
 31. Sambhav Social Service Organisation, Gwalior
 32. Gramin Vikas Vigyan Samiti (GRAVIS) Jodhpur, Rajasthan
 33. Sundarbans Social Development Centre, Polerhat, West Bengal
 34. Jeevan Jyothi Health Service Society, Meghnagar, Jhabua- Madhya Pradesh
 35. Rotary Eye Hospital, Dondaicha, Dhule Maharashtra
 36. HBS Trust, Jodhpur, Rajasthan
 37. The Christian Fellowship Hospital, Rajnandgaon, Chattisgarh
 38. Southern Health Improvement Samity 24 South Parganas District, West Bengal
- CBM SARO (S) Supported Hospitals**
1. CSI Redfern Memorial Hospital, Hassan, Karnataka
 2. Malankara Orthodox Syrian Church Medical Mission Eye Hospital, Kariambady, Kerala
 3. H.V. Desai Eye Hospital of Poona Blind Men's Association, Pune, Maharashtra
 4. Wanless Hospital, Miraj, Maharashtra
 5. St. Luke's Eye Care Hospital, Nazareth, Tamilnadu
 6. Good Samaritan Eye Hospital, Matrapalli, Tamilnadu
 7. Kotagiri Medical Fellowship Hospital, Kotagiri, Tamilnadu
 8. CSI Kalyani General Hospital, Chennai, Tamilnadu
 9. Schieffelin Leprosy Research and Training Centre, Karigiri, Tamilnadu
 10. Scudder Memorial Hospital, Ranipet, Tamilnadu
 11. Lutheran Eye Hospital, Dharapuram, Tamilnadu
 12. Vizhiyagam Eye Hospital, Sivagangai, Tamilnadu
 13. Vision Eye Hospital, Hubli, Karnataka
 14. Dr. Somervel Memorial CSI Mission, Karakonam, Kerala
 15. Institute of Ophthalmology, Josephs Eye Hospital, Trichy, Tamilnadu
 16. Medical Brother St. Johns Hospital, Kattappana, Idukki, Kerala
 17. Leprosy Relief Rural Centre, Chettipatty, Salem, Tamilnadu
 18. CSI Campbell Hospital, Jammalamadugu, Andhra Pradesh

19. ALC Pakayanathan Memorial Eye Hospital, Chengam, Tamilnadu
20. Malankara Orthodox Syrian Church Medical Mission Eye Hospital, Kotenchery
21. St.Martin's Hospital, Ramnad, Tamilnadu

Seva Supported Eye Hospitals

1. Sitapur Eye Hospital, Bahraich, Uttar Pradesh
2. King Mahendra Memorial Eye Hospital, Bharatpur, Nepal
3. Nepal Eye Hospital, Katmandu, Nepal
4. Provincial Hospital, Siem Reap, Cambodia
5. Islamia Eye Hospital, Dhaka, Bangladesh

WHO Supported Hospitals

1. National Institute of Ophthalmology, Dhaka, Bangladesh
2. Cicendo Eye Hospital, Bandung, Indonesia

IEF Supported Hospitals

1. Centre for Sight, Sofia, Bulgaria
2. Lions SightFirst Eye Hospital, Lilongwe, Malawi
3. Multi-clinicas Vicky Guzman, Santa Ana, El Salvador
4. Vizualiza, Guatemala
5. Kilimanjaro Christian Medical Centre Hospital, Tanzania

ORBIS Supported Hospitals

1. Chitrakoot Eye Hospital, Satna, Madhya Pradesh
2. Khulna BNSB Eye Hospital, Khulna, Bangladesh
3. Moulvibazar BNSB Eye Hospital, Moulvibazar, Bangladesh
4. Gausul Azam BNSB Eye Hospital, Dinajpur, Bangladesh

Other Hospitals

1. Jnana Prabodhini Medical Trust's Smt. Kamala Mehta Hospital, Satara, Maharashtra
2. K.B. Haji Bachooali Charitable Ophthalmic & E.N.T Hospital, Mumbai
3. Seethalakshmi Hospital, Gobichettipalayam, Tamilnadu
4. Indore Eye Hospital, Indore, Madhya Pradesh
5. Hospital Primero De Mayo, Bolivia, Bolivia
6. Al Noor Eye Hospital, Egypt
7. Alslama Eye Hospital, Perunthalmanna, Kerala
8. Lions Eye Hospital, Jalandhar, Punjab

ARAVIND MEDICAL RESEARCH FOUNDATION (AMRF)

AMRF has well-equipped ophthalmic research laboratories for studies on Molecular Genetics, Immunology, Biochemistry, Microbiology and Molecular Biology.



Dr.R.Chidambaram, Principal Scientific Advisor, Government of India, Chairman, TIFAC, inaugurating the Research Wing of TIFAC-CORE on Diabetic Retinopathy at Aravind Eye Hospital, Madurai

HE.Sri .P.S.Ramamohan Rao, the Governor of Tamil Nadu, Dr.R.Chidambaram, Principal Scientific Advisor, Government of India, Dr.B.Chandra Mohan, Collector, Madurai District and Dr.M.S.Vijayaraghavan, Chief Executice Officer, SITAR, Bangalore, with faculty and staff at AMRF

The Tamilnadu MGR Medical University has recognised Aravind Eye Hospital for Ph.D. in Ophthalmology and Madurai Kamaraj University for Biomedical Sciences. Four faculty members are recognised as supervisors and eight scholars are currently working for their Ph.D.

Molecular Genetics of Hereditary Glaucoma

Investigators: Dr.S.R.Krishnadas
Dr.P.Sundaesan

Collaborator: University of Iowa, USA

The project aims to identify genes for congenital glaucoma by using gene mapping methods in the Indian population.

Molecular Genetic of Primary Open Angle Glaucoma in Indian Population and structure-function analysis of myocilin protein

Investigators: Dr.P.Sundaesan
Dr.S.R.Krishnadas

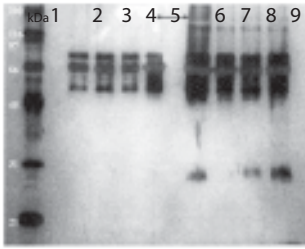
Collaborators: Dr.S.Krishnaswamy, School of Biotechnology, Madurai Kamaraj University

Research Scholars: J.Kanagavalli
Easwari Pandaranayaka

Funded by: Indian Council of Medical Research, New Delhi

Primary Open Angle Glaucoma (POAG) is the most common form of glaucoma and the second leading cause of blindness in the world.





Protein profile in aqueous humor of POAG patients

- 1 Broad Range Marker
- 2-5 Cataract Aqueous Humor
- 6-9 Glaucoma Aqueous Humor

It has been reported that mutations in MYOC (Myocilin) gene is associated with Juvenile OAG and POAG. About 200 POAG samples for mutations in MYOC have been screened. Seven MYOC mutations including two novel homozygous mutations were identified in Indian POAG population. The affected individuals were homozygous for the mutation. The family members heterozygous for the mutation were found to be normal. In addition, the protein profile in aqueous humor of POAG patients have been determined in comparison with cataract patients as control.

Molecular Diagnosis of eye diseases: Screening for mutations in Glaucoma patients and in congenital cataract patients

Investigators: Dr.VR.Muthukkaruppan
 Dr.P.Sundaresan
 Dr.S.R.Krishnadas
 Dr.P.Vijayalakshmi

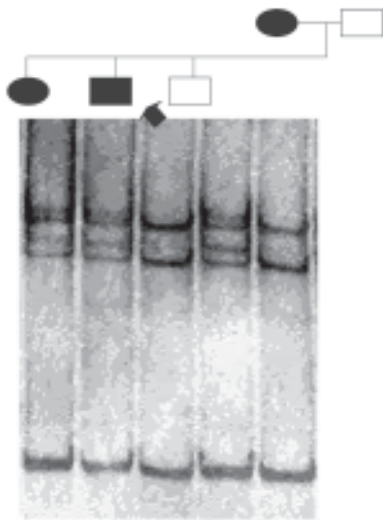
Research Scholars: J.Nallathambi,
 R.Ramya Devi,
 B.Hemadevi

Funded by: Council of Scientific and Industrial Research,
 under NMITLI programme

The purpose of this study is to screen for POAG and congenital glaucoma patients for mutations in the candidate genes (MYOC, OPTN, CYP1B1 and OPTC). Among 195 glaucoma patients and 75 of their family members, a few novel mutations in addition to those already reported by others have been identified.

For congenital cataract, 59 families with inherited cataract were enrolled for the study and the aim was to screen for mutations in Beta A3/A1, Gamma C, D, CX 46, HSF4 and BFSP2, the candidate genes of congenital cataract. One reported and two novel mutations have been identified in these families. It is proposed to devise a macro-chip containing all the responsible genes to facilitate an easy and rapid diagnosis at different centres of the country. This is a multicentre study.

CX46 Mutation causing autosomal dominant congenital cataract pedigree



This SSCP gel demonstrates a genetic mutation in three affected members causing congenital cataract in the family

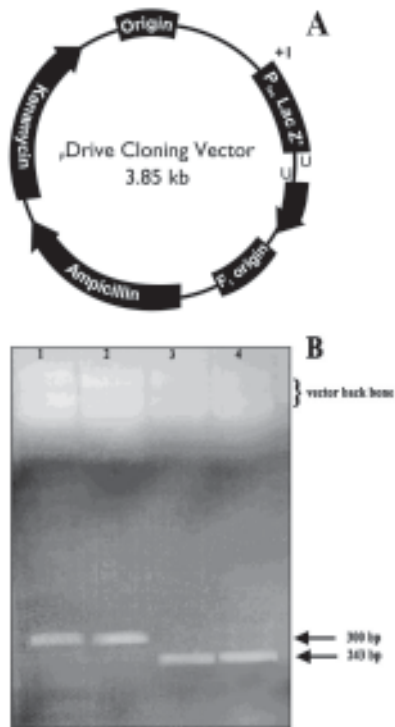
Studies on the Genetics of Inherited Aniridia in Indian Population

Investigators: Dr.P.Sundaresan
 Dr.P.Vijayalakshmi
 Dr.S.R.Krishnadas

Research Scholar: G.Neethirajan

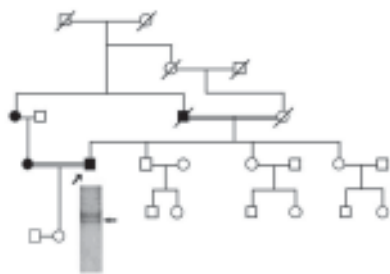
Funded By: Indian Council of Medical Research

The structural defects of iris is defined as aniridia and the haploinsufficiency of *PAX6* is the cause of the disease. The coding



A.The PCR products of PAX6 gene exon 10 (243bp) and exon 6 (300bp) were cloned in to the 3.85kb pDrive vector. **B.**The insert was confirmed by EcoRI restriction digestion to release the desired fragment

Identification of a novel C(-144)T Promoter polymorphism in aldose reductase (ALR) gene in Indian diabetic patients with and without retinopathy



The Pedigree and SSCP gel shows the mobility shift (indicated by arrow mark) in ALR gene of proband affected with diabetic retinopathy

regions were amplified by intronic primers and analysed on SSCP gel for the unusual banding pattern both in sporadic and familial aniridic cases. Band shift observed in sporadic cases will be either directly sequenced or cloned in bacterial vector for sequencing to avoid the superimposed signals (Fig A). The cloned insert was confirmed by restriction digestion (Fig B). Six novel, three previously reported nonsense mutations and one neutral polymorphism among 40 sporadic aniridic patients have been identified. These reports have been published in *Molecular Vision*, *BMC Medical Genetics* and in *Journal of Human Genetics*. Apart from this, three inherited aniridia mutations in which two are novel with addition and deletions have been identified. These new deletions resulted in frameshifts, which produced downstream stop codons at the N-terminal of PAX6. The genetic alteration is a loss-of function mutation leading to a severe phenotypes observed in these pedigrees. These data strongly support the candidature of PAX6 as the gene responsible for hereditary aniridia and reinforce the concept of haploinsufficiency.

Web sites: The research data were uploaded in the following sites

1. Entrez Nucleotide [<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide>]
2. Human PAX6 Allelic Variant Database [<http://pax6.hgu.mrc.ac.uk/Tables/tableall.htm>]

IDENTIFICATION OF CANDIDATE GENES AND SCREENING FOR MUTATIONS OF GENES ASSOCIATED WITH DIABETIC (TYPE II) RETINOPATHY

Investigators: Dr.P.Namperumalsamy
Dr.R.Kim
Dr.P.Sundaresan

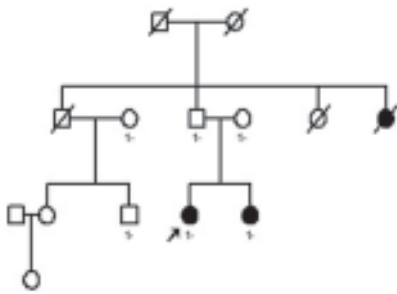
Collaborators: Dr.Edwin Stone
Dr.Mina Chung

Research Scholar: B.Suganthalakshmi

Funded by: TIFAC-CORE Department of Science and Technology

The main objective of the project is to screen mutations for the following candidate genes: Aldose Reductase (ALR), endothelial Nitric Oxide Synthase (eNOS), Receptor for Advanced Glycation End Products (RAGE), Angiotensin Converting Enzyme (ACE), Human Leucocyte Antigen (HLA), Vascular Endothelial Growth Factor (VEGF) and Tumor Necrosis Factor-alpha (TNF-alpha), in relation to Type 2 diabetic patients with and without retinopathy. Among the 120 diabetic retinopathy and 82 diabetic non-retinopathy patients screened for mutations in the candidate genes (VEGF, ALR and eNOS), five known and two novel promoter polymorphisms have been identified in Indian patients.

OAL-03-



Pedigree of Indian family with oculocutaneous albinism type 1. Filled circle (affected female)

Albino 1-1



GENETIC ANALYSIS OF OCULOCUTANEOUS ALBINISM TYPE 1 (OCA1) IN INDIAN FAMILIES

Investigators: Dr.P.Sundaresan
 Dr.P.Namperumalsamy
 Dr.G.Natchiar
 Dr.Asim Kumar Sil
 (Vivekananda Mission Asram, Chaitanyapur,
 West Bengal)

Collaborator: Dr.Edwin Stone, University of Iowa, USA

Oculocutaneous albinism type 1 (OCA1) patients demonstrate a partial or total lack of melanin in the skin, hair and eye. OCA1 is an autosomal recessive genetic disorder caused by mutations in the *TYR* gene located at chromosome band 11q14-q25. The purpose of this study was to carry out genetic analysis of OCA1 in Indian families. Two novel deletions (c.937del8, c.1379del2) and a previously known nonsense mutation (R278X) in the *TYR* gene were identified from a total of 8 oculocutaneous albinism patients in India. This study reports the distribution of two novel frameshift and a previously reported nonsense mutations in four OCA1 families from the Indian population. These findings will contribute to the development of a diagnostic method for OCA1 “carrier status” and genetic counselling for OCA1 affected families.

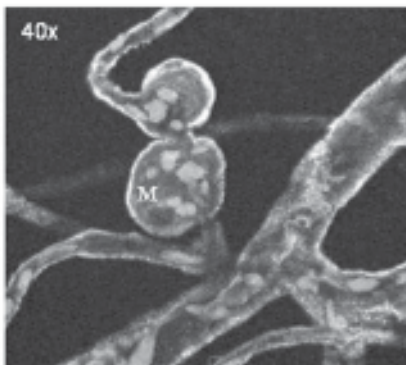
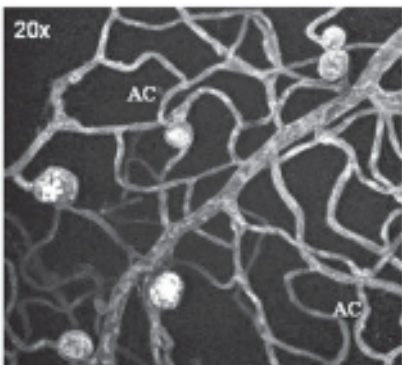
PATHOGENIC MECHANISM OF DIABETIC RETINOPATHY

Investigators: Dr.P.Namperumalsamy
 Dr.R.Kim
 Dr.VR.Muthukkaruppan

Research Scholar: P.Murugeswari

Funded By: TIFAC-CORE Department of Science and Technology

Confocal microscopic image of trypsinized cadaver diabetic retina showing VEGF-R2 positive blood vessels (green) and PI stained nuclei (red) with distinct microneurysms(M) and acellular capillaries(AC)



To elucidate the mechanisms of Diabetic Retinopathy we have estimated the levels of angiogenic factors (VEGF, bFGF) and anti-angiogenic factors (PEGF, ENDOSTATIN) by ELISA. Inflammatory cytokines (IL-6, IL-8, IL-1b) were quantified by ELISA and Cytometric bead array. Glucose level was determined by GOD-POD method. All the parameters were studied in the vitreous, aqueous humor, and serum of proliferative diabetic retinopathy (25), macular hole (12) and cadaver (50) samples.

Retinae from the Rotary Aravind International Eye Bank have also been studied for understanding the early events of diabetic retinopathy. Isolated retinal blood vessels were stained for CD31, an endothelial cell marker and VEGF-2 receptor and analysed using confocal microscopy. The results suggest that VEGF is high and PEDF is low in the vitreous of PDR, showing an imbalance of the angiogenic and antiangiogenic factors in diabetic retinopathy. The increased levels of IL-6 and IL-8 in the vitreous possibly highlight the importance of proinflammatory cytokines in diabetic retinopathy. As shown in the figures, it is possible to understand early events in the retina of diabetic retinopathy.

PATHOGENIC MECHANISM OF LEPTOSPIRAL UVEITIS

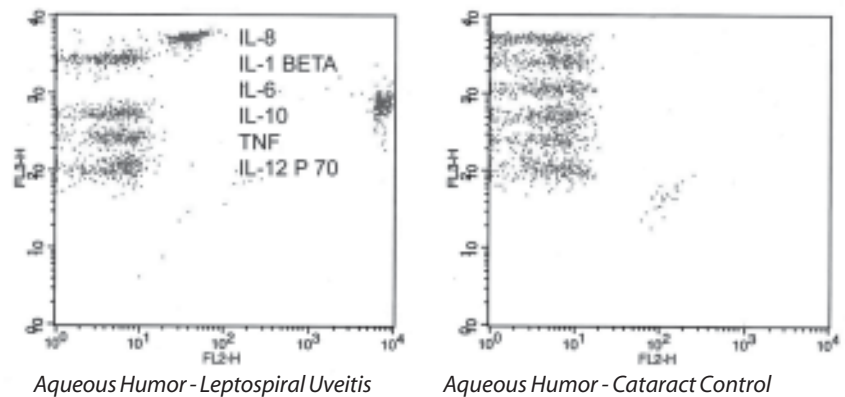
Investigators: Dr.VR.Muthukkaruppan
Dr.S.R.Rathinam

Research Scholar: C.Gowri Priya

On the basis of immunological and PCR analysis, the leptospiral aetiology of this form of uveitis has been confirmed. In order to understand the pathogenic mechanism, the profile of infiltrating cells and cytokines in aqueous humor were analysed.

A predominant infiltration of neutrophils as well as significant increase in the levels of protein and inflammatory cytokines, IL-6 and IL-8 but not Th1/Th2 cytokines in aqueous humor indicate that leptospiral uveitis is an inflammatory condition, not mediated by T-cells. Comparison of these results with studies on animal models suggests that leptospiral uveitis may be endotoxin mediated. However, further analysis is essential to elucidate the role of leptospiral lipopolysaccharide in inducing uveitis.

Figure shows BD Cell Quest data for aqueous humor, obtained by using Cytometric Bead Array for human inflammatory cytokines. A marked increase in the levels of IL-6 (80,000pg/ml) and IL-8 (640 pg/ml) was observed in leptospiral uveitis patient compared to cataract control (<20 pg/ml)





ISOLATION AND IDENTIFICATION OF LEPTOSPIRA SPECIES AMONG DOMESTIC AND FARM ANIMALS IN MADURAI

Investigators: Prof.VR.Muthukkaruppan
 Dr.S.R.Rathinam
 Dr.Rudy A Hartskeerl,
 (Royal Tropical Institute, Amsterdam, The Netherlands)

Research Scholars: C.Gowri Priya
 Karin T Hoogendijk and Maaïke van den Berg,
 (School of Veterinary Medicine, University of Utrecht, Utrecht, The Netherlands)



Karin and Maaïke in the Leptospirosis laboratory at Aravind

Two veterinary students from University of Utrecht visited Aravind to investigate the seroprevalence and isolation of *Leptospira sp.* in cattle, dog, rats and bandicoots in Madurai. All the 66 animals tested had antibody to *Leptospira* in MAT assay. Three urine samples from goat, 2 urine samples and 6 kidneys from rats were positive in culture for *Leptospira*. Serotyping and DNA typing of these isolates are now being carried out.

CHARACTERISATION OF HUMAN CORNEAL AND LIMBAL EPITHELIAL CELLS BASED ON THE EXPRESSION LEVELS OF P63

Investigators: Dr.VR.Muthukkaruppan
 Dr.M.Srinivasan
 Dr.N.V.Prajna

Research Scholar: Ms.Arptha Saravanan

This study aims at characterising human corneal epithelial stem cells on the basis of various molecular markers. The expression of p63, a transcription factor was quantified using confocal microscopy. Varying levels of p63 was observed in the cornea and limbus.

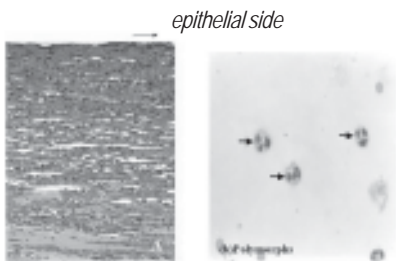
Higher levels of p63 expression was observed in the smallest cells in the limbus, however such cells were absent in the peripheral and central cornea. Therefore a distinct population of cells with the above criteria may be considered as putative corneal epithelial stem cells. This study will be extrapolated to cultured epithelial cells in the identification of corneal stem cells in the transplantation grade epithelial sheet.



Confocal image of a putative corneal epithelial stem cell, the smallest cell in the limbus, showing highest expression of a transcription factor, p63 (green)



Grocott's methenamine silver nitrate staining of fungus infected cornea showing fungal filaments throughout the corneal stroma



a. A section of the fungus infected cornea showing severe infiltration of inflammatory cells(H&E)

b. The cytospin preparation of infiltrating cells, isolated from the other half of the cornea, showing PMN (Giemsa)

IMMUNOLOGY OF FUNGAL KERATITIS

Investigators: Dr.VR.Muthukkaruppan
Dr.N.V.Prajana

Research Scholars: P.Murugeswari
G.Rohini

Funded by: Allergan

Fungal infections of the cornea resulting in ocular morbidity continue to pose a great threat in India and developing countries. Inflammation of the fungus infected cornea, called as the second injury to the cornea, is the major cause for corneal destruction. Cytospin preparations stained with Geimsa identified a major proportion of cells as polymorphs. In order to understand the early events of the inflammatory response, the tear samples from normal and infected eyes were studied. The tear of these patients showed polymorpho nuclear cells (PMN) as the predominant infiltrating cells and an elevated level of cytokines IL-6 and IL-8. IL-8 continued to be elevated even at the healing stage of the ulcer.

Currently the importance of inflammatory cytokines, matrix mettaloproteinases and the tissue inhibitors of matrix mettaloproteinases involved in the pathophysiology of fungal keratitis is being determined.

POPULATION BASED SURVEILLANCE FOR CONGENITAL RUBELLA SYNDROME (CRS) IN SOUTH INDIAN CHILDREN

Investigators: Dr.P.Vijayalakshmi
Collaborator: Dr.David Brown, Central Public Health Laboratory, London

Research Scholar: T.Amala Rajasundari

Funded By: World Health Organization

The second part of this WHO study is to identify the immune responses to rubella in confirmed CRS cases from India after the age of 12 months. These 477 serum samples collected from the suspected cases were assayed for IgM and IgG antibodies including their avidity for confirmation of CRS.

Dr.Li Jin, Molecular Virologist and Dr.David Brown, Director, Central Public Health Laboratory and Dr.Ben Lopman, Epidemiologist, Communicable Disease Surveillance Centre (CDSC) London visited the lab for Review and Monitoring of PCR and serology work.

Dr.Dhanraj Samuel, Clinical Virologist, Head of Serology Development Unit, Respiratory and Neurological Virus Laboratory, Colindale, London trained the technician in CRS lab for Dade Behring Enzygnost anti-rubella IgG and IgM tests.

The Tenth Meeting of the World Health Organization – Steering Committee on Epidemiology and Field Research was hosted by the Aravind Eye Hospital, Madurai and was organised on September 7–8 at Aravind Eye Hospital, Madurai. The meeting was attended by 7 of the committee members and 5 participants. Rubella Sero surveys in India (Aravind Eye Hospital-Madurai, Christian Medical College-Vellore), Mozambique, Peru, Oman, Brazil and Myanmar were presented by participants from the respective countries and the outcome of the same was discussed by the committee members.

As a part of the CRS study, the study team (Dr.David Brown, Dr.Susan Robertson, Dr.P.Vijayalakshmi and other staff members) discussed their present work and future plans along with the visitor Dr.Marilda Siqueria, Chief, Respiratory Virus Laboratory, Ministry of Health, Brazil. Dr.Marilda visited the Aravind laboratory facilities and gave suggestions for the study.

TO STUDY THE IMMUNE RESPONSE TO RUBELLA VACCINATION IN FEMALE / MALE HEALTH WORKERS AT ARAVIND EYE HOSPITAL BETWEEN 18 TO 40 YEARS OF AGE

Investigators: Prof.VR.Muthukkaruppan
 Dr.P.Vijayalakshmi
 Research Scholar: T.Amala Rajasundari
 Funded by: ORBIS project

This study focuses on the immune status of the hospital health care (female & male) personnel to the Rubella Virus and to follow the IgM and IgG antibody response after vaccination of those who do not have detectable antibody to Rubella. Serum samples from 500 female and 81 male health care workers who volunteered in different departments of the hospital were collected. These samples were examined for Rubella specific IgG and IgM antibodies by ELISA. Among them 66 were found to be negative for both IgG & IgM, which

indicates their susceptibility to this rubella virus. These persons were given a single dose of Rubella Vaccination (Wistar RA27/3, Serum Institute of India, Pune). The vaccinated individuals will be followed up regularly at 1st week, 4th week and third month from the date of vaccination for the antibody response.

RESEARCH ADVISORY COMMITTEE

The Research Advisory Committee Members of AMRF are

Aravind CRS research team with Dr.P.Namperumalsamy, and the Steering Committee on Epidemiology and Field Research of the World Health Organization (WHO) Department of Immunization, Vaccines and Biologicals at LAICO





Prof. K.Dharmalingam, Professor and Head, Department of Genetic Engineering, School of Biotechnology, MKU, Mr.Sarangapani, Senior Advocate and Ms.Shobana Ramachandran, Industrialist and Social Development Expert at the Institutional Review Board Meeting

Dr.G.Venkataswamy, Dr.P.Namperumalsamy, Dr.A.Gnanam, Dr.G.Shanmugam, Dr.K.Ananda Kannan, Dr.V.Mohan, Mr.G.Srinivasan, Dr.VR.Muthukkaruppan, Member Secretary, and Dr.M.Srinivasan.

INSTITUTIONAL REVIEW BOARD

As part of strengthening the research in line with international standards, AMRF has an Institutional Review Board (IRB) with Dr.S.R.Rathinam as the Chairman of the Board and Dr.T.S.Chandrasekaran, Dr.K.Dharmalingam, Mr.Sarangapani, Ms.Shobana Ramachandran, Dr.C.Srinivasan and Dr.L.Thayumanavan as Members.

AMRF RELATED TRAINING PROGRAMMES

One Day training

Hyderabad, November 10

Dr.Reena Chandrashekhar underwent a one day hands on training programme in handling p32/p33 labeled biomolecules. The training was held at Jonaki Board of Radiation and Isotope technology, CCMB Campus, Hyderabad.

Second Workshop on Genetic Epidemiological Methods for Dissection of Complex Human Traits

(Organised by TCG-ISI Centre for Population Genomics, Kolkata, India and University of Pittsburgh, Pittsburgh, USA) Kolkata, December 13–21

Dr.P.Sundaresan participated in the workshop.



Dr.Reena Chandrashekhar, Dr.P.Sundaresan and Dr.Praveen Nirmalan during their US visit

Visits Abroad

ARVO 2004 Annual Meet

Fort Lauderdale, Florida USA, April 25–29

A team comprising of Dr.P. Sundaresan, Ms.Reena Chandrashekhar and Dr.Praveen Nirmalan visited USA to present their research findings of 'Genetics of Aniridia' as well as to establish the modern techniques adopted to study the Molecular Genetics on inherited eye diseases in Aravind Medical Research



Dr.P.Sundaresan with Dr.Edwin Stone and Dr.Lee Alward

Foundation. They also interacted with many research scientists during the five days conference.

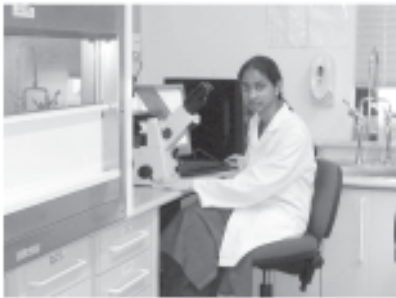
Dr.P.Sundaresan Ph.D, Senior Scientist, Molecular Genetics

- visited the university of Rochester Eye Institute, Rochester, New York and met Dr.Mina Chang, (Retina Vitreous Service) and developed a prospective collaborative research project on 'Genetics of Diabetic Retinopathy'.
- worked as a research scientist for about a month in May with Dr.Edwin Stone Lab, Iowa, USA in 'Molecular Genetics on Ocular Albinism and Diabetic Retinopathy' followed by discussions about the on-going NEI/NIH research project on "Molecular Inherited Hereditary Glaucoma".
- also visited University of Wisconsin, Madison and learned more about 'TM 5 Cells Separation from Cadaver Eyes' and 'Viral Gene Therapy for Glaucoma'.
- also visited W.K. Kellogg Eye Centre, University of Michigan, USA and met Dr.Rah Ayyagari and had discussion pertaining to the genetics study on 'Age Related Macular Degeneration for Future Collaboration'.

Dr.Reena Chandrashekhar, Ph.D, Senior Scientist, Molecular Biology

At the Kellogg Eye Centre, Ann Arbor, Michigan she had hands-on exposure to lens fibre differentiation in culture from lens epithelial explants of rabbit, in situ cell death detection assays to stress – induced human retinal pigment and lens epithelial cells by fluorescence microscopy and flow cytometry. She brought back the Human Lens Epithelial (HLE) cell line SRA 01/04 from Dr.Reddy's lab and has successfully sub-cultured it in the tissue culture facility of AMRF. The HLE cell line and apoptosis assays would be useful in future research programmes, in understanding the regulatory processes and maintenance of lens transparency.

In addition, Dr.Reena had several useful discussions with scientists and clinicians from National Eye Institute, Wilmer Institute, Kellogg Eye Centre, University of California, University of Oakland etc., regarding potential collaborative ventures on genetics of cataract, retinal diseases and corneal dystrophies.



Ms.Ramya in the Tissue Culture Laboratory in Save Sight Institute, Sydney

Ms. Ramya, Junior Research Fellow

Sydney, Australia August 28–September 20

At the XVI International Congress of Eye Research in Sydney, Australia, Ms.Ramya presented a poster on 'Crystallin Beta A3/A1 gene variants in South Indian Population'.

At Save Sight Institute, she had the opportunity to observe Dr.John McAvoy's work in his lab. She also gained hands-on-experience on various techniques like lens epithelial explanting, organ culture and immunofluorescence. It helped in the better understanding of the vital role of various growth factors that are involved in the multiple stages of lens development.



Dr. S.R.Rathinam with Dr.Narasinga A Rao and Dr.Shah

58th National Conference in Clinical Ophthalmology

Tokyo, Japan, November 11–14

An afternoon session on one of these days was devoted to a symposium on Uveitis in Asian Countries. The symposium was organised by the President of the International Uveitis Study Group, (IUSG) Dr.Narasinga A. Rao and one Uveitis expert each from the countries of India, Nepal, Japan and Australia were invited to attend.

At this session, Dr.S.R.Rathinam learnt about the changing epidemiology trends and the varying causes that precipitate the changing trends in different countries. In South India, infection is the most common cause for Uveitis because of our tropical climate. Dr.S.R.Rathinam highlighted the causes in uveitis stressing the differences between North India and South India that arise due to the climatic differences. The talk was well received and the specialists in systemic infectious diseases were deeply interested in exploring opportunities for collaborative research with Aravind.



Dr.S.R.Rathinam at the PAN-Pacific Uveitis Forum

ARAVIND EYE BANKS

ROTARY ARAVIND INTERNATIONAL EYE BANK, ARAVIND-MADURAI

2004 marked the sixth year of community service in providing sight restoring corneal tissues for the Rotary Aravind International Eye Bank. With an impressive year filled with awards and certifications to look back upon, the coming year promises even more remarkable progress in the collection of donor eyes.

The Eye Bank recovered a total of 1515 corneal tissues from 758 donors in 2004. This represents a 6% increase in recovered tissue over 2003. After screening tissues for pathology, the Eye Bank was able to restore sight to 562 corneal blind patients. Eye Donation awareness lectures were given in several places. Posters and banners were displayed in prominent public places like petrol bunks, banks, in the railway station and post offices. Awareness articles about eye donation and eye bank facilities were published in the local English and Tamil dailies.



Dr.Eugene Helveston from ORBIS International, Dr.M.Srinivasan, Ms.Brinda Priyadarshini and Ms.Saradha



Distribution Services

The eye bank services have been expanded to Orissa through collaboration with the SS Borda Eye Hospital in Bhubaneswar, benefiting many corneal patients. This expansion of service was made possible based on a request from Dr.Lolly Patnaik, who was a cornea fellow at Aravind-Madurai.

New Collection Centres

The eye donation awareness and enucleation services of the eye bank have been extended to Thirumakkottai, Srivilliputtur, Rajapalayam and Karur. The Lions and Rotary Clubs networks have established Eye Collection Centres established at each of these sites.

Hospital Cornea Retrieval Programme was initiated in December 2004 at the Government Rajaji Hospital in Madurai.

New Projects

Reliance Infocomm, Mumbai has started “Drishti” – a nationwide corneal grafting surgical drive to light up the lives of corneal blind patients by providing free of cost corneal transplant surgeries through various eye hospitals in India has been started. Since then more than 70 patients have benefited by this project at Aravind Eye Hospital.

Accreditation and Certification

The Rotary Aravind Eye Bank has been chosen by the International Federation of Eye & Tissue Banks in the USA as its country representative co-ordinator for the process of localising the new International Federation of Eye & Tissue Banks’s Standard Operating Procedures and Policies.

Technicians from the Rotary Aravind International Eye Bank have been certified as “Certified Eye Bank Technician” (CEBT) by the International Federation of Eye and Tissue Banks in the United States.

OTHER ACTIVITIES

- Dr.M.Srinivasan attended an NPCB-EBAI (National Programme for Control of Blindness - Eye Bank Association of India)-ORBIS workshop on ‘Strengthening of Eye Banking Initiatives in India’ at New Delhi on July 23–24.
- Eight General Physicians from different districts of the State were trained in ‘Retrieval, Packaging and Transportation of Donor Eyes’.
- NPCB - ORBIS-EBAI Medical Directors Workshop was attended by Dr.M.Srinivasan at Faridabad, a one-day workshop to discuss strategies to strengthen eye-banking initiatives in the country.
- Throughout the year a number of public awareness programmes and promotional activities were carried out by Ms.Brinda Priyadarshini and the eye bank team.

ARAVIND EYE BANK, ARAVIND-COIMBATORE

In addition to providing the normal services of an eye bank, the bank has worked hard on creating awareness by broadcasting a question and answer session on All-India Radio. It has also published a write-up on eye donation in “Thikathir” Tamil Magazine, and a video on eye donation for patients and staff inside the hospital. The Eye Bank received a total of 367 eyes in 2004.



Rotary District Governor Mr.Ganapathy inaugurating Rotary Aravind Eye Bank at Aravind-Tirunelveli

ROTARY ARAVIND EYE BANK, ARAVIND-TIRUNELVELI

On May 28, the Rotary Aravind Eye Bank was inaugurated in Tirunelveli with the collaboration of the Rotary Club of Oklahoma, USA and the Rotary Club of Tirunelveli West.

Dr.P.Namperumalsamy, Dr.G.Natchiar, Mr.R.D.Thulasiraj and Dr.M.Srinivasan felicitated the occasion along with several District Governors of Rotary. Everyone stressed the need for mobilising and motivating the community to donate eyes, and the need to grow further to serve the community better. Dr.G.Venkataswamy also participated in the inauguration through videoconferencing from Aravind-Madurai.

Eye Donation Awareness Workshop

Aravind-Tirunelveli, November 7

An eye donation awareness workshop was conducted by Rotary Aravind Eye Bank, Aravind-Tirunelveli on behalf of Rotary Club of Tirunelveli West. It was inaugurated by Sri.Atul Anand I.A.S., District Collector. Dr.R.Ramakrishnan, Dr.M.Srinivasan and Ms.Brinda Priyadarshini spoke on various aspects of eye donation. Mr.Sarpam A.S.Murugavel, a successful eye donation volunteer was honoured on this occasion.

AUROLAB

While the manufacture of intraocular lenses continues to be a key activity for Aurolab, exploration into the development of new ophthalmic products has become a growing focus as Aurolab looks forward to the future.

Aurolab has enjoyed phenomenal growth over the last twelve years of its operation, and filled a critical need in the fight against needless blindness by providing affordable ophthalmic products to the developing world. In today's competitive global marketplace, Aurolab is on the verge of a new period of growth as it begins to expand its product line to cover a wider range of ophthalmic needs. A parallel effort to this growth is incremental innovation in existing product lines to meet the demands of a shifting market, while continuing to work with distribution partners around the world to reach greater numbers of the under-served.

INTRAOCULAR LENS DIVISION

The Intraocular Lens Division registered 15% growth in sales over the last year. Several new products were launched in 2004 with development beginning for a small number of other new products to be launched in the future.

Aurolab has introduced a newly designed IOL called TruEdge, a 360° square edge PMMA IOL, to reduce cell migration, one of the major causes of Posterior Capsular Opacification (PCO). The square edges on this lens prevent cell proliferation while the projected posterior edge ensures total capsular contact. Steep vault enhances capsular bending and rounded anterior edges reduce glare, resulting in a product that is able to more comprehensively deal with the issues of PCO.

Aurolab has added two new models of foldable lenses, Auroflex and Microfold. While both are implanted with an enhanced delivery system after phacoemulsification, the Auroflex lens can be implanted with a 2.8mm incision, while the Microfold lens can be implanted with a 2.2mm incision. These smaller incisions allow faster wound healing, less induced astigmatism, improved unaided acuity, and overall quicker recovery for the patient.

A product under development that is nearly ready for release is the FluorIOL, a fluorine surface modified PMMA intraocular lens. These lenses have an extremely smooth biocompatible surface, resulting in much lower cell attachment and silicone adherence, reduced inflammatory response and the permanent modification gives greater optical endurance.

Aurolab is developing a method to covalently bond heparin to PMMA lens surfaces, and is presently in the final stages of laboratory tests on this product. This lens is much better suited to diabetic and glaucoma patients, and more effectively deals with post-operative inflammatory response.

Considerable progress has been made in developing hydrophobic foldable IOLs and efforts are undertaken to bring out foldable lens samples for clinical trials, shortly.

PHARMACEUTICAL DIVISION

The pharmaceutical division now manufactures over 50 high quality ophthalmic drugs at affordable costs through its state-of-the-art facility. Modern analytical instruments and equipment used to test the drugs ensure tight quality control and products that exceed international standards. These high standards garnered international recognition through receiving the WHO-GMP certificate for all ophthalmic drugs while also complying fully with schedule 'M' requirements laid out by Indian drug regulators. The CE certification for retinal drugs like silicone oil, perfluoro octane, and indocyanine green was also received in the last year.

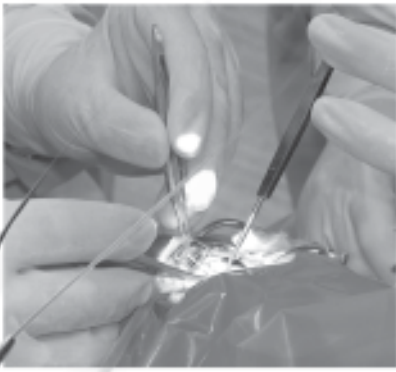
In 2004, the pharmaceutical division successfully launched preservative-free triamcinolone acetonide for retinal surgery, and cyclosporine drops for dry eyes. Intraocular gasses like C3F8 and SF6 are currently under development.

To ensure total hospital asepsis, the pharmaceutical division also produces scrub solutions, alcoholic rub solutions, instrument disinfectants, skin prep solution and operation theatre floor cleaning solution. New ways of leveraging the pharmaceutical division's chemical expertise is continually evaluated to search for opportunities to manufacture consumables needed for the comprehensive needs of eye hospitals.

SPECTACLE LENS DIVISION

The Spectacle lens division has set up a central plastic lens surfacing laboratory in Madurai and plastic as well as glass lens edging facilities close to the optical shops in all the Aravind Eye Hospitals. The





availability of production capabilities enabled optical shops to provide better customer service and also increase the sale of plastic lenses.

Another surfacing machine was also put into production in Madurai to optimise the output levels. Production of progressive addition lenses increased, and this trend is likely to continue in the coming year.

In addition to producing spectacles, this division also produces spectacle mounted telescopes and high power aspheric lenses needed for low vision patients. These special aids are supplied to the low vision clinics in the hospitals. Hard-coated CR-39 progressive lenses are also supplied to optical shops at affordable prices.

SUTURE NEEDLE DIVISION

The suture needle division received a big order of 8-0 virgin silk from the Indian Government and were able to fulfill the order in record time.

Another major milestone was the successful completion of the first inspection and audit by the US FDA during December 2004. The success of the audit opens up new possibilities for the sale of suture needle division products within the United States.

Macro-sized ophthalmic needles used in orbit and oculoplasty, orbitotomy, ptosis, lid and socket reconstruction, and retinal detachment surgery were developed and launched during this year. The product is gaining great acceptance in the market and receiving

sizeable orders.

The division is also working on developing absorbable sutures that cater to the ophthalmic segment, and is likely to launch them in the near future.

HEARING AID DIVISION

The Hearing Aid Division has started to manufacture two new products: In-The-Ear (ITE) and Half Shell pre-wired faceplates. Mr. Marcel Ruiz, Design and Development Engineer from Project Impact, was here in the Spring of 2004 to provide training in the manufacture of these products. These pre-wired faceplates are Analog Digitally programmable hearing aids which are much smaller than behind the ear (BTE) models.



At the hearing aid manufacturing unit

The assembled hearing Aids were supplied to Project Impact, USA for distribution.

NEW PRODUCTS

A new product launched in 2004 was the Aurokit, a surgical consumable kit for cataract surgery. This contains all the necessary preoperative, intraoperative, and postoperative quality surgical consumables required for 5 cataract surgeries. The kit represents a one-stop, ready-to-use, affordable, convenient solution to conducting effective camp activities and daily surgeries. Another advantage of the kit is that it can be customised to the differing needs of various doctors, ensuring that product orders are efficient and streamlined from a physician's perspective.

Aurolab is exploring the manufacture of ophthalmic instruments such as direct ophthalmoscopes. With technical assistance from an European company, prototypes of a hand-held direct ophthalmoscope including the mechanical, optical, and electrical components have been developed. User trials have been completed and the products will be released onto the market in early 2005. A battery-operated version of the ophthalmoscope is also being developed to cover the needs of users on the move in remote areas or eye camps. Discussions are also underway with an Indian research and development organisation to develop a newly designed, economically priced model of the Ophthalmoscope/Retinoscope.

A high frequency, Bipolar Coagulator (cautery) which is used widely in radiosurgical procedures has been developed and introduced into the market. Using ultra-high frequencies (3.5 MHz), this new instrument is a non-stick cautery, allowing for reduced collateral tissue damage and rapid healing. A second model with an additional monopolar cautery feature used for cutting procedures has also been developed to cater to users requiring equipment versatility.

As a designated "Industrial Partner" of the TIFAC-CORE Centre on Diabetic Retinopathy, Aurolab has launched exploration into the development of green lasers widely used in the treatment of



QUALITY
quality is for everyone
AFFORDABILITY



Mr.Venkatesa Kannan, Mr.R.D.Sriram and Mr.Joel Seagre at the American Academy Meet at New Orleans, USA

retinal diseases. A Memorandum Of Understanding (MOU) has been signed with a laser development organisation for the development of an economically priced high quality solid state green laser.

In order to address the issue of refractive error, Aurolab is exploring the possibility of making low-cost, plastic lenses and low-vision aids. Preliminary discussions have already been initiated with technology partners to chart a course of action in parallel with the setup of Aurolab's new manufacturing facility in 2005.

MARKETING

Four Area Development Managers have been appointed in four major Indian cities with plans to hire three more soon. Training has already been initiated for dealers and field staff, and two training sessions have been completed with more scheduled in 2005.

An international marketing effort was initiated when Managing Director, Dr.P.Balakrishnan and Planning and Development Director, Mr.S.P.Clement visited Switzerland, Germany, France, and Dubai. The 22nd Congress of the European Society of Cataract and Refractive Surgeons (ESCRS) in Paris hosted a trade exhibition where products were surveyed and various international manufacturers were present. The team also had an opportunity to tour the research labs of a major spectacle lens manufacturer as well as their state-of-the-art lens manufacturing facility.

Aurolab participated in the 7th General Assembly of the International Agency for the Prevention of Blindness held in Dubai in September and promoted its ophthalmic products in the trade exhibition. The conference was widely attended by ophthalmologists and dealers of ophthalmic products from many developing countries. More than 500 delegates primarily representing the Non Governmental Organisations (NGOs) working in eye care service delivery in developing countries attended this conference. There was good response from many delegates for Aurolab products, particular interest shown in the new Cataract Kit (Aurokit). Aurolab also participated in the technical discussions at the Vision 2020 Appropriate Technology Forum held during this meeting.

Mr.R.D.Sriram and Mr.V.Venkatesa Kannan participated in the Joint Meeting 2004 of American Academy of Ophthalmology and European Society of Ophthalmology held at New Orleans from October 23–26. A number of delegates visited the stall and enquired about the different products manufactured at Aurolab. The effort further raised Aurolab's international profile as a leading manufacturer of top quality ophthalmic products.

Dr.P.Balakrishnan and Mr.Clement with Mr.Dietmar Steinmetz at Carl ZeissTech





Mr. Mike Myers with Mr. Charles

AT THE NELLAI SANDHIPPU

Aurolab presented itself in a new outfit, with a whole range of new display items speaking about the organisation's philosophy, its presence worldwide and within India, quality policy and new and existing products. Aurolab launched two new models in the range of Foldable lenses – Aurofold & Microfold, two pharmaceutical products – Aurocort and Ofpred and a few suture needle models with black braided silk, green braided polyester and blue monofilament polypropylene. Several delegates visited the stall and expressed a great interest in the new products of Aurolab.

E-COM ENABLED WEBSITE DEVELOPMENT

Aurolab is developing an e-Com enabled website and Mr. Mike Myers, a long time volunteer of Aravind, from Florida, USA, helped a great deal in this project. Mr. Mike was at Madurai for a 2 month period helping in planning and implementing every step of this project with the Aurolab team. This website will feature a brief description of every product offered by Aurolab, e-shop facility to select and shop Aurolab's products online and payment for the orders placed by credit cards online. This website will be integrated with order booking, sales and payment systems of Aurolab to ensure that these processes are carried out automatically. This effort was initiated with the view of making order placement and payment easy for domestic and international customers.

at Nellai Sandhippu





Mr.Robert Santner, Mr.Victor Meyerfreund, Mr.Frank Davidson and Ms.Susan Renaud at Auroville, Pondicherry

AUROLAB TO MOVE TO A NEW FACILITY

Aurolab will be shifting its entire manufacturing and operations to a new purpose – designed building in a prime location at Veerapanchan, 10kms away from its current location, to cover its increasing demand for its existing products and to provide for the development of new products. The construction plans have been finalised for the same and the actual work will commence in three months' time. This new building spanning 110,000sq.ft of footage area including 15,000sq.ft of clean area, will have an integrated, state of art manufacturing facility conforming to all international regulatory requirements. This building, with a separate Research and Development facility for every department, can easily accommodate future expansions also.

LONDON BUSINESS SCHOOL STUDY AT AUROLAB

A four member Sloan Fellowship team from the London Business School visited Aurolab between March 29 and April 10. The Sloan Fellowship is a specialised MBA programme for experienced individuals with a strong track record of personal accomplishment. The four member team included Mr.Robert Santner, Mr.Victor Meyerfreund, Mr.Frank Davidson and Ms.Susan Renaud, and the objective of their visit was to work on a 'Corporate Strategy' for Aurolab. During the course of their study, they interacted with the Aurolab Board, Directors, Managers and customers. They also visited Pondicherry and met Dr.G.Venkataswamy to understand better the role of Aurolab within the Aravind Eye Care System and fully appreciate his vision for Aurolab. Before their departure, the team gave its final presentation to the Board of Directors and the Management.

UNIVERSITY OF CALIFORNIA, BERKELEY

During June and July, a team of three doctoral students, Mr.Aman Bhandari, Mr.Mahad Ibrahim and Mr.Jaspal Sandhu from University of Berkeley, California, conducted research on the Aurolab model. The main objective of the research was to understand how Aurolab created a sustainable organisation that surmounted the barriers to producing medical technologies in developing countries and the potential for Aurolab's success to be replicated for technologies outside of medical eye care consumables. They conducted a series of interviews and on-site visits to Aurolab, Aravind Eye Care System in India in June 2004 and with Seva Foundation, Berkeley, California and Project Impact, Berkeley in the early 2004. The final draft of the paper will be prepared to be published in April 2005 at UCB-UNIDO 'Bridging the Divide' conference.

CONTINUING MEDICAL EDUCATION PROGRAMMES

Update on Paediatric Ophthalmology & Strabismus

Aravind-Pondicherry, February 14

Dr.P.Vijayalakshmi

- General consideration of strabismus surgery & video

Dr.Shashikanth Shetty

- Paediatric cataract

International Symposium on Diabetic Retinopathy

Aravind-Madurai, April 17-18

A special CME Programme focused on Diabetic Retinopathy (DR) followed the TIFAC-CORE inauguration. Dr.G.Venkataswamy and Dr.Suresh Chandra delivered the inaugural address while the scientific sessions were chaired by Dr.P.Namperumalsamy, co-chaired by Dr.Michael Altaweel. Moderators for various sessions included Dr.V.M.Loganathan, Dr.Chandra Abraham, Dr.Sabera Saha, Dr.Suresh Chandra, Dr.Tara Prasad Das and Dr.Tarun Sharma.

Dr.P.Namperumalsamy

- Diabetic Retinopathy - Magnitude & challenges
- TIFAC-CORE grading and reading of Diabetic Retinopathy
- Diabetic Retinopathy vitrectomy study results

Dr.Anil Kapur

- The burden and status of diabetes care in India

Dr.Sabera Saha

- DCCT, epidemiology of diabetes intervention & complications study (EDIC) VPKDS - Implications for the ophthalmologist

Dr.Suresh Chandra

- Pathogenesis, natural course and classification of Diabetic Retinopathy
- DRS & ETDRS goals and results

Dr.Tara Prasad Das

- Role of FFA & OCT in Diabetic Retinopathy
- Pharmacotherapy in DR-Overview
- Role of vitrectomy for DME

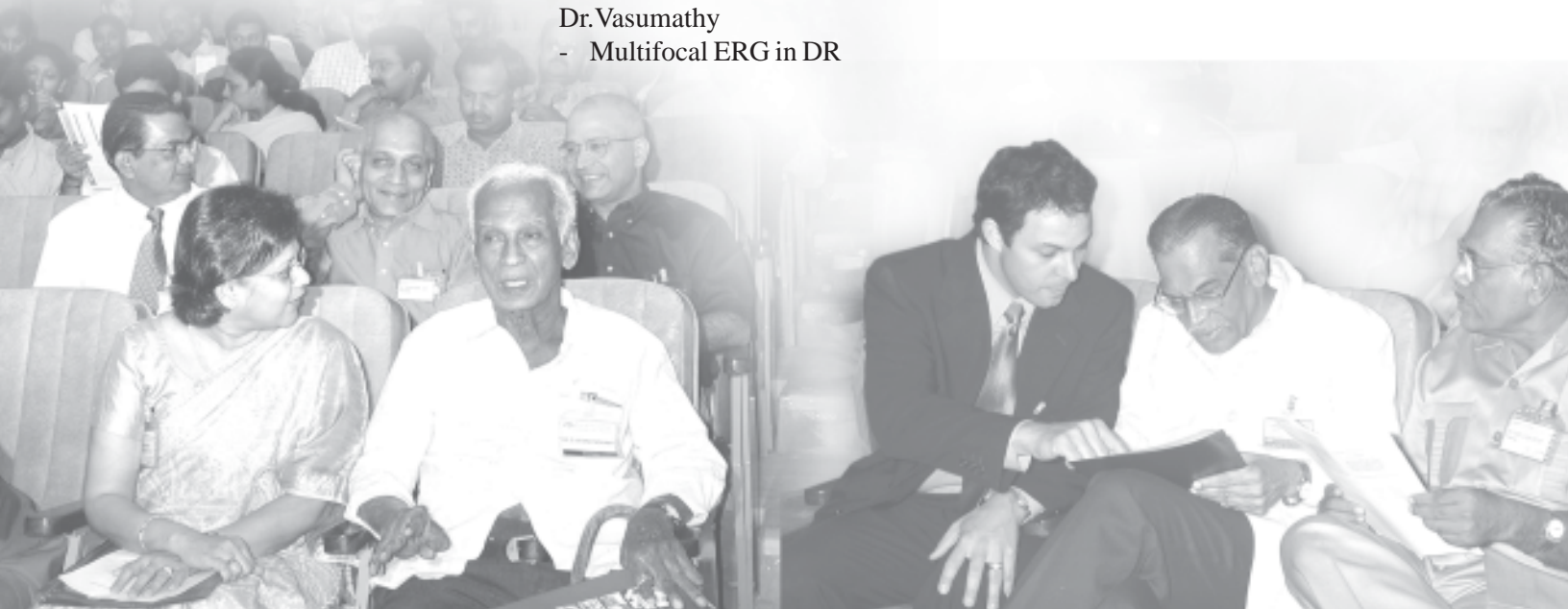
Dr.Vasumathy

- Multifocal ERG in DR



Dr.Suresh Chandra lighting the lamp with Dr.G.Venkataswamy at the inauguration of the International Symposium

Dr.Sabera Saha, Dr.G.Venkataswamy, Dr.Michael Altaweel, Dr.P.Namperumalsamy and Dr.Loganathan





Panel discussion at the symposium



Aravind Retina-Vitreous faculty with the guest faculty

Dr.Kim

- Aravind model of screening for DR & KAP study results

Dr.Chandran Abraham

- Laser photocoagulation in DR clinical perspectives

Dr.Lloyd Paul Aiello

- Joslin Visual Network (JVN) and telemedicine screening for DR
- DR clinical research network
- Role of PKC B-inhibitor in DR and macular edema

Dr.Michael Altaweel

- Clinical practice and grading of DR and DME
- Eligibility for clinical trials
- Anti VEGF inhibitors

Dr.Haytham Salti

- Octreotide study
- Infectious endophthalmitis in diabetes

Dr.Michael IP

- Intravitreal injection of triamcinolone acetonide for diabetic macular edema
- Fluocinoline acetonide intravitreal implant for the treatment of diabetic macular edema

Dr.Tarun Sharma

- Vitreous surgery for complications of DR

Dr.Sundaresan

- Genetics in DR

Dr.D.Shukla

- Atypical manifestation of DR

Dr.Jager

- Cataract surgery in diabetic patients

CME PROGRAMME ON CORNEA: EXTERNAL DISEASES AND REFRACTIVE SURGERIES

Aravind-Coimbatore, June12–13

As a part of the on-going CME programme schedule at Aravind an update meeting was held. Headed by Dr.P.Namperumalsamy, the programme hosted 65 delegates from in and around Tamil Nadu, Kerala and Karnataka including distinguished guest faculty such as Dr.V.Sangwan, LV.Prasad Eye Institute, Dr.Kullin Kothari, Mumbai and Dr.J.K.Reddy, Coimbatore.



Dr.P.Vijayalakshmi delivering the inaugural address

CME ON PRIMARY PAEDIATRIC EYE CARE

LAICO, June 26

A one day CME programme on Primary Paediatric Eye Care was inaugurated by Prof.

Dr. V.K.Samilal.

Prof.Dr.N.Raghavan, President of the Indian Academy of

Paediatrics delivered the presidential address. The main

purpose of this programme was to create an awareness about the

Retinopathy of Prematurity (ROP) including details on diagnosis, management and complications. It also dealt with creating awareness of eye problems associated with common paediatric disorders. About 95 doctors (Paediatricians, Obstetricians and Gynecologists) participated in this programme.

Dr.P.Vijayalakshmi

- Cataract in children

Dr.Vasumathy

- Retinopathy of prematurity

Dr.Shashikanth Shetty

- Interesting systemic syndromes with eye signs

Dr.Sundaresh

- Other common eye diseases in children

CME ON UVEITIS AND INTRAOCULAR INFLAMMATION

Aravind-Coimbatore, September 26

Dr.S.R.Rathinam

- Terminology and classification of uveitis
- Infectious vs. Non-infectious uveitis
- Leptospirosis

Dr.D.Shukla

- Retinal vasculitis

Dr.Anand Rajendran

- Sarcoidosis
- Posterior uveitis - Case presentation

Dr.Gurdeep

- Anterior and intermediate uveitis - Case presentations

Dr.B.Manohar Babu

- Pan uveitis - Case presentation
- VKH

Dr.Kalpana Narendran and Dr.Gurdeep

- Paediatric uveitis



Dr.S. Mahesh Kumar at the Neuro-ophthalmology Symposium

Dr.Sudha

- HIV and the eye
- Investigation in uveitis
- Surgery in uveitis

Dr.Saravanan

- Viral retinitis

NEURO OPHTHALMOLOGY SYMPOSIUM

October 30–31

The conference helped ophthalmologists to exchange information and update their knowledge in Neuro ophthalmology through scientific sessions. Apart from the regular sessions a live videoconference session was organised from Wilmer Eye Institute, Baltimore. About 110 delegates attended the symposium, apart from Aravind postgraduate students in ophthalmology.

Dr.S.Mahesh Kumar

- Evaluation of pupils and it's neuro ophthalmic significance
- Chiasmal syndromes
- Evaluation of a case of homonymous hemianopia

Dr.Venugopal

- Evaluation of infra-nuclear disorders of cranial nerve palsies 3,4 &6

Dr.P.Vijayalakshmi

- Evaluation of a case of paralytic squint
- Orthoptic and surgical management of paralytic squint

Dr.Sashikanth Shetty

- Video presentation-surgical management of paralytic squint

Dr.R.D.Ravindran

- Differential diagnosis of Disc edema

Dr.Usha Kim

- Orbital disorders of neuro ophthalmic interest

Dr.Rasheena

- Intracranial epidermoid cyst

Dr.P.M.Aravind

- Neuro ophthalmic manifestation of Behcet's syndrome

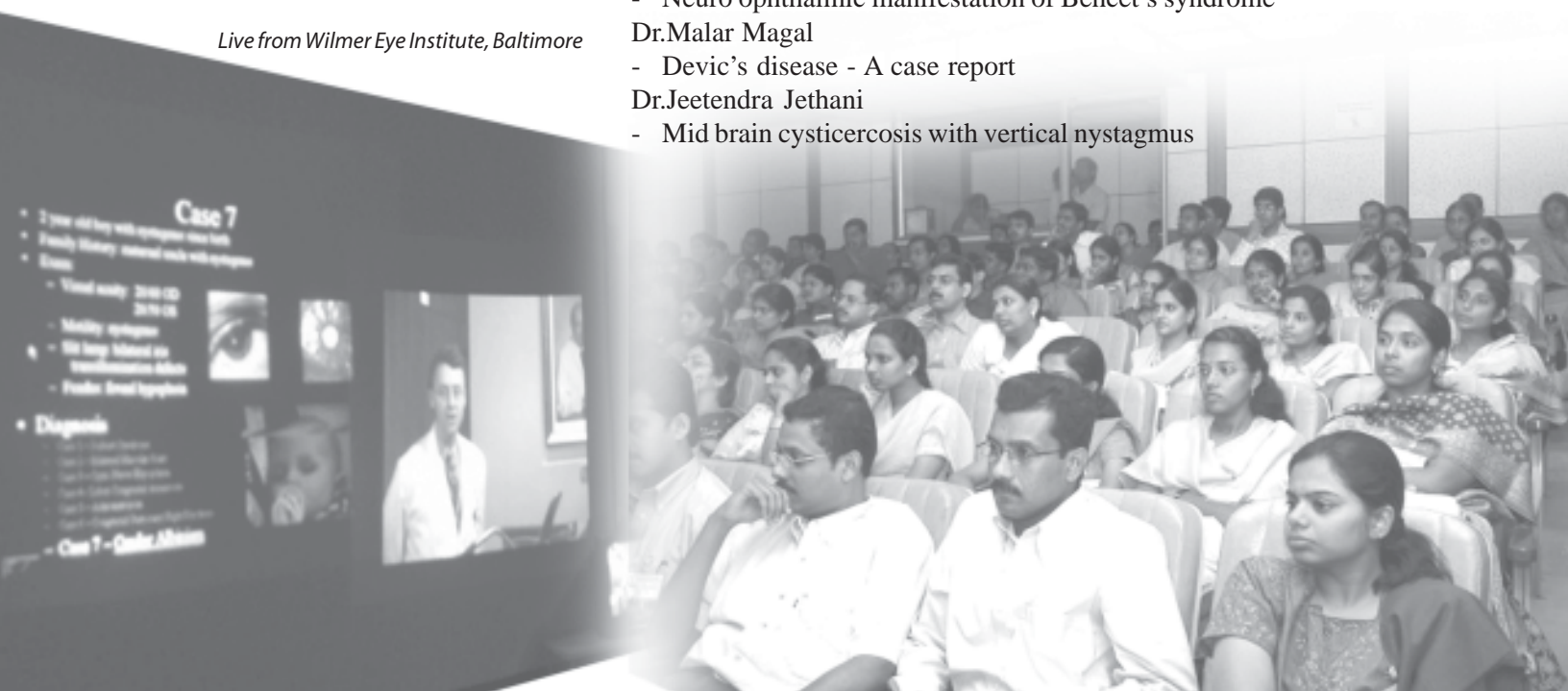
Dr.Malar Magal

- Devic's disease - A case report

Dr.Jeetendra Jethani

- Mid brain cysticercosis with vertical nystagmus

Live from Wilmer Eye Institute, Baltimore



Dr.Raveendra R Kolvekar

- Sturge weber syndrome

Dr.Amar

- Bitemporal hemianopia due to supra sellar tuberculoma

Dr.Praveen T.M.

- Visual hallucination due to temporal lobe hemangioma

Dr.Lionel Raj

- Carotico cavernous fistula

Dr.Ritesh

- CP angle tumour causing brun's nystagmus

Dr.Mihir Shah

- Pseudo glaucoma due to supra sellar meningioma
- Bilateral internal carotid artery aneurysm causing visual loss

Dr.Prashanth

- Neuro cysticercosis presenting as papilloedema

Dr.S.Aravind

- Clivus chordoma presenting as sixth cranial nerve palsy

PHACO MICROPHACO SICS: BASICS AND BEYOND

Aravind-Madurai, December 10–12

The highlights of the CME were the guest lecture presentations and live surgery demonstration by Dr.Takayuki Akahoshi, the pioneer of the Phaco Prechop Technique from Japan, Dr.A.Hennig from Nepal with the 'Fish Hook' Technique of Nucleus delivery in Manual SICS and Dr. Suhas Haldipurkar's immaculate surgery sessions.

Guest faculty:

Dr.Albert Hennig, Programme Director, Sagarmatha Chaudhary Eye Hospital, Nepal

- Phacoemulsification, Lahan experience
- Fish Hook Technique

Dr.Akahoshi, Director and Chairman of the Department of Ophthalmology, Mitsui Memorial Hospital, Tokyo, Japan

- Intraoperative surprises in phacoemulsification
- Innovations

Dr.S.Haldipurkar, Laxmi Eye Institute, Panvel, Mumbai

- Who broke my capsule? The sob story
- Dealing with astigmatism during cataract surgery

Aravind Faculty:

Dr.Minu Mathen

- Tunnel construction - Principles
- Safe phaco in subluxated cataract
- Perfecting microincision cataract surgery

Dr.Anand Dev

- Hydrodissection - Facts & myths

Dr.R.Venkatesh

- Nucleus management techniques - Pearls and pitfalls
- Technology update for the cataract surgeon



Dr. Anand Dev and Dr. S.Aravind with Dr.Takayuki Akahoshi



Dr. Albert Hennig with Mr.G.Srinivasan



ARAVIND EYE CARE SYSTEM



Dr. Minu Mathen with Dr. Suhas Haldipurkar

Dr. Haripriya



15th Update at Aravind-Coimbatore

- Dr. Usha Kim
 - Precautions in handling white & brown cataracts and weak zonules
- Dr. S. Aravind
 - Phaco dynamics
 - Crisis management
- Dr. Kalpana Narendran
 - Four quadrant nucleofractis technique
- Dr. R. D. Ravindran
 - Stop & chop
 - Post-operative complications
- Dr. Haripriya
 - Mastering phaco chop
 - Transition to bimanual microphaco
 - Posterior polar cataract –Surgical options
- Dr. Lalitha Prajna
 - Ophthalmic instruments-Sterilization and asepsis
- Dr. Thiruvengadkrishnan
 - IOLs - Materials & designs
- Dr. N. V. Prajna
 - IOL power calculation following refractive surgery
- Dr. M. Srinivasan
 - Intraocular fluids in phacoemulsification
- Dr. P. Vijayalakshmi
 - Surgical management of paediatric cataract
- Dr. S. R. Krishna Das
 - Video session – What next?
 - Surgical management of coexisting cataract & glaucoma
- Dr. P. Sathyan
 - Newer IOLs
- Dr. R. Ramakrishnan
 - Scleral tunnel Vs Clear corneal
 - Strategies for delivering nucleus through small pupil
- Dr. Kim
 - Current trends in endophthalmitis management

Update in Ophthalmology for Postgraduate Students

The 14th update was held at Aravind-Pondicherry, February 8–14. 17 postgraduate students participated.

The 15th update was held at Aravind-Coimbatore, September 26–October 2.

56 students representing various colleges from different parts of the country participated.



CONFERENCES ATTENDED ELSEWHERE

Voluntary service Organisations' International Conference on Empowerment (VOICE)

Mumbai, January 8–9
Rotary Club of Bombay West

DR.S.ARAVIND

- Voluntary organisation to social enterprise



Dr. S. Aravind at the conference

62ND AIOS CONFERENCE-2004

Varanasi, January 8–11

DR.KIM

- Pathogenesis of macular hole surgery
- Complications of vitrectomy
- Complications of subretinal fluid drainage

DR.VASUMATHY

- Premacular haemorrhage secondary to ruptured parafoveal retinal arteriovenous malformation

DR.K.CHANDRAMOHAN

- Transpupillary thermotherapy (TTT) in treatment of choroidal neovascular membrane (CNVM) of non-age related macular degeneration (NARMD) etiologies

DR.AMIT ARORA

- Screening protocol for sight-threatening diabetic retinopathy in South India

DR.P.VIJAYAKSHMI

CO-CHAIRMAN FOR THE PAEDIATRIC SESSION AND
FREE PAPER PRESENTATION (SQUINT)

- Pre-operative binocular consideration
- Refractive errors in children - How and when to prescribe glasses for children
- Cost-effective current techniques in low vision practice (Chief Instructor)

DR.SUNDARESH

- Long term results of primary posterior capsulotomy in paediatric cataract surgery

DR.R.VENKATESH

- Visual perception during cataract surgery

DR.PRAVEEN KRISHNA

- Gender inequalities in utilisation of cataract surgical services in a tertiary care hospital: A pilot study

DR.ANAND RAJENDRAN

- Enzyme linked immunosorbent assay (IgM) – Its significance in cases of ocular toxoplasmosis

DR.SHARMILA

- Clinical comparison between goldmann applanation tonometer and tonopen in measuring intraocular pressure

DR.ILANGO

- Cost-effective low vision service in the context of Vision 2020
- Functional vision
- Recent advances in low vision

DR.LALITHA PRAJNA

- Infectious scleritis clinical and microbiological review

DR.M.SRINIVASAN

- Eye banking
- Awareness of eye donation, review of population based studies/surveys
- Difficulties faced in hospital cornea retrieval programme - Experience of RAIEB
- Current therapy of Herpes simplex virus keratitis
- Latrogenic corneal injuries

DR.USHA KIM

- DCR
- Entropion
- DCR with indupation

DR.S.R.KRISHNADAS

- Cataract & glaucoma surgery: Principles and basics (Instruction course on management of combined glaucoma and cataract)
- Steroid induced glaucoma (Instruction course on common problems in glaucoma for general ophthalmologists)
- Neuroprotection is here to stay

DR.DHIRAJ

- Paediatric proptosis - A review of 43 cases in tertiary centre

DR.MINU MATHEN

- Endothelial cell loss following phacoemulsification – A comparison of three different techniques

- Phacoemulsification in subluxated cataracts – A safer technique
- Wound construction in SICS

DR.SHIPRA

- Myopic astigmatism – How effective is LASIK?
- Role of stem cell transplantation in ocular surface disorders

DR.PARAG K SHAH

- Screening for retinopathy of pre maturity - A comparison between indirect ophthalmoscope & ret cam 120



Dr. R. Venkatesh and...



Dr. Kim at the AIOS conference

DR. RAJESH SAHAY

- *Post-operative endophthalmitis-A clinico microbiological study*

DR. SASI KUMAR DEVRAJ

- *Micro-centrifugation: A novel method of increasing the yield of bacteria in endophthalmitis specimen*
- *Retinopathy of pre maturity – A growing menace-video presentation*

DR. V. NARENDRAN

- *Ret cam-The handy cam for screening retinopathy of pre maturity*

DR. ABHIJIT CHATTOPADHYAY

- *Demographic profiles of patients with central serous chorio-retinopathy-A small study in the Indian scenario*

DR. MAITRI KASHYAP

- *Intravitreal injection of triamcinolone acetonide for refractory diffuse diabetic clinically significant macular edema*

DR. A. RAGHURAM

- *Post-operative endophthalmitis following scleral buckling*

DR. KALPANA NARENDRAN

- *Paediatric ophthalmology for practicing general ophthalmologists (Instruction course)*
- *SICS course- SICS irrigating vectis technique*

DR. THOMAS MATHEW

- *Comparison of visual outcome of occlusion therapy in strabismus amblyopia and anisometropic amblyopia*
- *Binocular status after surgery for exotropias - our experience*
- *Inferior oblique metonym*

DR. SATHYAN PARTHASARATHY

- *Correlation between applanation tonometry and homo tonometer in normal eyes*

Seminar on Management of Health Services

Centre for Management of Health Services, Indian Institute of Management, Ahmedabad

DR. R. D. RAVINDRAN

- *Quality assurance in health care sector*

11th International Congress of Ocular Oncology

Hyderabad, January

DR. S. MANOJ

- *Transpupillary thermotherapy for subfoveal CNVM in choroidal osteoma*



Dr. S.R. Rathinam at the International Symposium on Intraocular Inflammation

International Symposium on Intraocular Inflammation

(Conducted by Uvea Society of India & PGI)

Chandigarh, February 6–8

At the conference Dr. S.R. Rathinam was elected as the Vice-President of Uveitis Society of India.

DR. S. R. RATHINAM

- *Classification of uveitis leptospiral uveitis*

DR. B. MANOHAR BABU, UVEA CHIEF

COIMBATORE-AEH

- *UKH Syndrome-Retrospective analysis of 40 cases*

Glaucoma Meeting

RIO, Chennai, February 14

DR. R. VENKATESH

- *Ocular hypertension & normal tension glaucoma*

Annual Meeting of the American Glaucoma Society

Florida, USA, March 4–7

Dr. S.R. Krishnadas participated in the meeting. He had a poster presentation by the Aravind Comprehensive Eye Survey (ACES) group on Utilisation of eye care services by persons with glaucoma in rural India.

National Seminar on Governance

Department of Political Sciences, Gandhigram Rural University, Gandhigram. March 21–22

DR. ILANGO

- *Use of information technology for community health and Aravind's role in rural connectivity for community eye care*



Dr. M. Srinivasan at the BOS Conference

Frontier in Ophthalmology

Delhi Ophthalmological Society's (DOS) Annual Conference

New Delhi, April 3–4

DR. M. SRINIVASAN

Co-Chaired the session on 'Infectious Keratitis

- *Fungal keratitis-Presentation and management*
- *Combined cataract surgery with keratoplasty*
- *Limitations and pitfalls of stem cell grafting*
- *Avenues for young ophthalmologist in India*

He also participated as Faculty in the Session on VIEW POINT LASIK

International Eye Health Symposium

LVPEI, Hyderabad, April 3–5

DR. P. NAMPERUMALSAMY CHAIRED

THE SESSIONS ON RETINA

- *Retina, inflammation & uvea*

43rd Annual Conference of National Academy of Medical Sciences (India)

Jaipur, April 9–11

Dr. P. Namperumalsamy received the Dr. V. Rajam Oration Award 2002-

- *2003 and delivered the oration on "Diabetic retinopathy - An emerging problem in India"*

Eye India 2004

Pune, April 10–11

DR. R. VENKATESH

- *Cataract surgery - Technique of your choice*



Dr.S.Aravind at the ESSILOR Convention



Mr.G.Srinivasan and Dr.S. Aravind with Mr.Xavier Fontonap, Chairman of Essilor International



Dr.Minu Mathen, Dr.Haripriya, Dr.S.Aravind and Dr.R.Venkatesh at the ASCRS Meeting



Dr.R.Venkatesh and Dr. Minu Mathen with Dr.Manus Kraff and Dr.Roger Steinert, Co-chairpersons of ASCRS Scientific committee

Round Table Discussion

Goa, April 17

DR.R.RAMAKRISHNAN

- Current trends in glaucoma management and role of dorzolamide

Essilor Asia Pacific Convention

Kota Kinabalu, Malaysia, April 20-24

Mr.G.Srinivasan, Dr.S.Aravind, Mr.Murugesan and Ms.Divya were invited to participate

DR.S.ARAVIND

- Eye care delivery-The Aravind model

American Society ASCRS Meeting

San Diego, May 1

Instruction Courses

CHIEF INSTRUCTOR, DR.HARIPRIYA,

FACULTY, DR.S.ARAVIND, DR.MINU

MATHEN, DR.R.VENKATESH

- Learning manual small incision cataract surgery

CHIEF INSTRUCTOR, DR.S.ARAVIND,

FACULTY, DR.MINU MATHEN, DR.R.VENKATESH,

DR.HARIPRIYA ARAVIND

- High volume, high quality, cost effective non phaco small incision sutureless cataract surgery for the developing world

DR.R.VENKATESH

- Rock and roll technique to prolapse the nucleus in sutureless ECCE
- Film theatre presentation: High volume, high quality, cost effective cataract surgery for the developing world

DR.MINU MATHEN

- Safer options for phacoemulsification in subluxated cataracts
- Efficacy of capsular tension ring – Long term results on IOL centration
- Endothelial cell loss following phacoemulsification- A comparison of three different techniques
- A comparative analysis of patient comfort during phacoemulsification under topical anaesthesia, without and with intracameral lignocaine
- Film theatre - Safer approach to phacoemulsification in subluxated cataracts

DR.HARIPRIYA

- Post cataract surgery Nocardia endophthalmitis
- Hydrophobic acrylic vs Hydrophilic acrylic: 2 year results
- Effect of anterior capsule factor on posterior capsule opacification in acrylic IOLs
- Phacoemulsification in patients with fuch's heterochromic iridocyclitis

DR.SASIKUMAR DEVARAJ

- Micro - centrifugation to increase the yields of bacteria in endophthalmitis specimen

Glaucoma - Where are we now

Chennai, May 19

DR.R.RAMAKRISHNAN

- Glaucoma – where are we today
- Imaging of ONH in glaucoma

Dr. Minu Mathen, Dr. S.Aravind, Dr.Haripriya, Dr.R.Venkatesh, Dr.Sasikumar Devaraj with Dr. G.Venkataswamy and Mr.Ravi Nallakrishnan of ASICO at the ASCRS Meeting





Dr. G. Natchiar at the APACRS Meeting



Dr. R.D. Ravindran explaining a technique in the wetlab

Dr. Kalpana Narendran at the Workshop on Manual Small Incision Cataract Surgery



Seventeenth International Meeting of the Asia- Pacific Association of Cataract and Refractive surgeons (APACRS)

Cataract Implant, Microsurgery & Refractive Keratoplasty
Bali, Indonesia, June 12–15

Dr. Natchiar, Dr. R.D. Ravindran and Dr. Kalpana Narendran were invited to be both a speaker and course director for the meeting.

DR. NATCHIAR

- *Advantages of SICS over PHACO - Cost of SICS for patients and for ophthalmologists*
- *Learning curve of SICS*

DR. R.D. RAVINDRAN

- *Capsulotomy & nucleus prolapse into AC*
- *Alternate nucleus delivery techniques*

An instruction course on “Manual Small Incision Cataract Surgery” was conducted on the inaugural day of the meeting.

Workshop on Manual Small Incision Cataract Surgery

Regional Eye Hospital, Indonesia

Dr. R.D. Ravindran, Dr. Kalpana Narendran attended the workshop. In addition to the didactic lectures, they also performed live surgeries.

CME Programme

Mumbai, June 20

Dr. R. Ramakrishnan took part in a CME programme which was organised by Aditya Jyoti Eye Hospital, Mumbai.

This programme was supported by the Carl Zeiss Education Fund. As guest faculty Dr. R. Ramakrishnan led discussions on the following topics:

- *OCT (Optical Coherence Tomography) in glaucoma*
- *OCT (Optical Coherence Tomography) – Why do we need it?*

Optical Coherence Tomography

Kolkatta, June 27

Dr. S.R. Krishnadas attended this meeting on Optical Coherence Tomography in Early Glaucoma diagnosis conducted by Carl Zeiss Educational Fund.

H.V. Desai Eye Hospital

Pune, July 7

DR. P.V. VIJAYALAKSHMI

- *Congenital cataract management - Amblyopia*

Anuradha Eye Hospital

Sangli District July, 8

Dr. P. Vijayalakshmi inaugurated ‘Anuradha Eye Hospital’ of Dr. Milind Killeder’s (Aravind Alumnus - Paediatric Fellow) at Sangli District. She also gave a lecture

- *Congenital cataract management*

Madurai Ophthalmic Association Conference

Govt. Rajaji Hospital, Madurai, July 27

DR. VASUMATHY

- *Retinopathy of prematurity - The growing menace*

CME Programme on Glaucoma Update

St Johns Medical College, Bangalore, July 31

DR. S.R. KRISHNADAS

Guest faculty and led discussions on:

- *Target IOP (Intra Ocular Pressure) in glaucoma*
- *Complications of glaucoma filtering surgery*

DR. R. RAMAKRISHNAN

- *Corneal thickness in glaucoma*
- *Glaucoma and cataract management - When to operate?*

Nellai Sandhippu 2004, The 52nd Annual conference of TNOA

Tirunelveli, August 13–15

DR. P. NAMPERUMALSAMY

- *Prevalence, screening, and tele-networking of diabetic retinopathy*

DR. M. SRINIVASAN

Chaired the session on Refractive Surgery

LASIK- TODAY & BEYOND

- *Refractive surgery- LASIK- Today & beyond*

Convenor – *Challenges in Anterior segment surgery*

- *Customised LASIK (personalised vision correction)*
- *Puk (Peripheral Ulcerative Keratitis) surgical treatment*

DR. P. VIJAYALAKSHMI

Chaired the session on Paediatric Priorities in Ophthalmic Practice.

She also conducted a course on Paediatric priorities in ophthalmic Practice

- *The challenges of visual impairment in children*
- *Vision testing & refraction in the paediatric age group*
- *Clinical trials in amblyopia*

MR. R.D. THULASIRAJ

- *Priorities in ophthalmic care in the new millennium*

DR. NARENDRAN

- *Cystoid macular edema*

DR. KALPANA NARENDRAN

- *Retinopathy of prematurity – The growing menace*
- *Spectacle prescription for children - The practice preferred*

DR. USHA KIM

- *Lid and orbital injuries*
- *Endonasal DCR*

DR. R.D. RAVINDRAN

- *Convenor of the video session on challenges in anterior segment surgery*

- *Managing complications in cataract surgery*
- *Steps for standard phaco training*

Dr.S.R.RATHINAM

Convenor of the Uveitis Grand Round session

Dr.S.R.RATHINAM, Dr.B.MANOJAR BABU AND Dr.KUMARAN

Presented Interesting and challenging case reports in uveitis

Dr.R.RAMAKRISHNAN

- *Clinical trials in glaucoma*

Dr.VENKATESH PRAJNA

- *Conventional LASIK*

Dr.LALITHA PRAJNA

Chaired the session on Sterilisation and Asepsis in Ophthalmic Theatres

- *Sterilisation and asepsis in ophthalmic operation theatres*
- *Theatre sterilisation*

Dr.P.SATHYAN

- *Neuroprotection for glaucoma*

Dr.R.MEENAKSHI

- *Traumatic cataract*
- *Childhood cataracts- Practical pearls in management decisions*

Dr.MAHESH KUMAR

Symposium on Neuro-Ophthalmology

- *Visual field defects in neuro-ophthalmology*

Dr.V.VENU GOPAL

- *Optic disc edema due to hypoparathyroidism - A case report*

Dr.K.CHANDRAMOHAN

- *Intravitreal steroids for diabetic macular edema (Rapid Fire session)*
- *A typical presentation of CSR*
- *A typical presentation of IJT (intravitreal juxtafoveal telangiectasia)*

- *A typical presentation of posterior scleritis*

Dr.HARIPRIYA

- *Manual SICS in subluxated cataracts*
- *Challenges in transitioning to bimanual microphaco*
- *Post cataract surgery Nocardia endophthalmitis*

Dr.R.VENKATESH

- *Manual SICS triple procedures*
- *Techniques of nucleus prolapse*

Dr.MAMTA TIWARI

- *Medical treatment of corneal and systemic immune disease*

Dr.NAGENDRA SHAH

- *DCR and intubation procedures*

Dr.REVATHI

- *Pterygium surgery*

Dr.MANEKSHA

- *Approaches to orbit*

Ms.PREETHI PRADHAN

- *Vision2020 e-resources*

Dr.MINU MATHEN

- *Intra-operative surprises*
- *Difficult cataract surgical situations*
- *Interesting intra-operative surprises and management in SICS*

- *Efficacy of capsular tension ring: Intra-operative safety and long-term results*

- *A comparative analysis of patient comfort during phacoemulsification under topical anaesthesia with and without intracameral lignocaine*
- *Video- The PC rupture story*

- *Video- stability - The sacred rule to success*

Dr.MOHIDEEN

- *Role of OCT in diagnosis of glaucoma*



Dr.K.Chandramohan, Retina Vitreous Clinic, Aravind-Madurai

Dr.D.SHUKLA

Chaired the session on Retina Symposium for Anterior Segment Surgeons and Moderator in a free paper session on Retina-Vitreous

- *Post-operative complications of anterior segment surgery (Convenor)*
- *DR- Progression after cataract surgery*

Dr.VR.MUTHUKARUPPAN

Chaired the session on Genes

- *The molecular key to eye diseases*
- *Molecular genetics of cataract*

Dr.SUNDARESAN

- *Molecular genetics of glaucoma*

Dr.J.ARUN KUMAR

- *Elevated intraocular pressure and glaucoma in thyroid related orbitopathy*

Dr. Revathy, Chief, Cornea Clinic, Aravind-Coimbatore



Dr. P. Namperumalsamy, President, TNOA, Dr.Sukumar, Secretary, TNOA and Dr.R.Ramakrishnan, Organising Secretary, Nellai Sandhippu



- Dr.T.VIJAYA PRIYA
- Visual prognosis in patients with pituitary adenoma - a case series
- Dr.SHARMILA
- Granulocytic sarcoma - A rare manifestation of leukemia
- Dr.MONA SANE
- SLE retinopathy
- FREE PAPERS
- Dr.RAVINDRA R.KOLVEKAR
- Two year clinical comparison of acrylic and silicone IOLs
 - Case report: Corneal melting in association with rheumatoid arthritis
- Dr.AMIT PORWAL
- Cataract surgery in high axial myopia
- Dr.GURDEEP SINGH
- Epidemiology of microbial keratitis in a referral centre in South India in paediatric age group
 - Penetrating keratoplasty in paediatric age group
 - Epidemiological profile of ocular toxoplasmosis in paediatric age group in one of the tertiary referral centres in South India
 - Epidemiology of paediatric uveitis in one of the tertiary referral centres
 - To study the change in refractive error after unilateral frontalis for congenital ptosis
 - Surgical results in large angle exotropia
- Mr.JAYAHAR BHARATHI.M
- Trends in contact lens associated microbial keratitis in South India
- Dr.SRI SHANKAR
- Treatment outcome in Nocardia keratitis
- Dr.T.M.PRAVEEN
- A clinical profile of keratomycosis in a tertiary referral eye care centre in South India
- Dr.S.PADMAVATHY
- Supratarsal steroid injection in severe vernal keratoconjunctivitis
- Dr.P.RAVINDRANATH REDDY
- Surgical debridement and cryotherapy in management of microbial scleral abscess
- Dr.SACHIN MATHEW GEORGE
- A randomized trial comparing intraoperative Mitomycin C and conjunctival autograft in pterygium excision
- Dr.PRADEEP SINGH RATHORE
- External dacryocystorhinostomy – Only anterior flaps Antastomoses without intubation – Analysis
- Epidemiology, risk factors, management and visual Prognosis in post-traumatic endophthalmitis
 - Generalised ocular fibrosis – A case series
- Dr.MANEKSHA, KAUSHIK SHAH, RAMAKRISHNAN R
- A case of bilateral optic nerve glioma with neurofibromatosis
- Dr.B.MANO HAR BABU
- VKH – Retrospective analysis of 38 patients
- Dr.APOORVA MITTAL
- Profile of neovascularisation of iris in uveitis
- Dr.ANANDHI SUBRAMANIAN
- Scorpion bite envenomation with neuro ophthalmic presentation – A case report
- Dr.M.KUMARAN
- Normal electrophysiology in methanol induced optic neuropathy
- Dr.MYNA T.ACHAR
- Neuroretinitis – A diagnostic dilemma
- Dr.MIHIR SHAH
- Nonglaucomatous pathological cupping – A diagnostic dilemma
 - Bilateral intracranial carotid artery aneurysms – A case report
- Dr.T.VIJAYA PRIYA
- Visual prognosis in patients with pituitary adenoma
- Dr.SHAMIK P.MOKADAM
- Purtscher's like retinopathy in systemic lupus erythematosus
 - Quantitative evaluation by optical coherence tomography of diabetic macular edema after treatment
- Dr.SHAMIK A.AMBATKAR
- Optical coherence tomography in solar (photic) retinopathy
- Dr.M.S.SUNIL
- Visual recovery following heparinization in CRAO analysis of 6 cases
- Dr.GEORGE
- Timing of open globe injury repair – Visual outcome and complications
- Dr.LIONAL RAJ
- Optical coherence tomography in pigmented macular lesions – A case series
- Dr.SASIKUMAR DEVARAJ
- Micro-centrifugation: A novel method of increasing the yield of bacteria in endophthalmitis
- Dr.KAVITA PORWAL
- Incidence of retinal detachment after cataract extraction with intraocular lens implantation in high axial myopia
- Dr.MONA SANE
- Retinopathy in systemic lupus erythematosus
- Dr.RITESH SANGHVI
- Visual outcome of Pan Retinal Photocoagulation (PRP) for Proliferative Diabetic Retinopathy (PDR)
- Dr.S.MANOJ
- Clinical presentation and outcome of post-operative Nocardia infections
- Dr.RODNEY MORRIS
- Anatomical and visual outcome of paediatric retinal detachments following primary buckle surgery
- Dr.AMAR A.KARKHANIS
- Analytical study of 98 cases following blunt ocular trauma
- Dr.SAMUEL P.JOHN
- Mitomycin-C after pterygium excision at the strength of 1mg/ml
- Dr.SAURABH MITTAL
- Ocular manifestation in tobacco factory workers – An initial report
- Dr.VIJAY.N
- To study the clinical course and management of fellow eye after enucleating one eye in bilateral retinoblastoma
 - Clinical presentations and management of retinoblastoma
- Dr.KAUSHIK SHAH
- PCIOL implantation in congenital/developmental cataract-Our experience
 - Myopic shift after PCIOL implantation in congenital / developmental cataract
- Dr.GURDEEP SINGH, Dr.P.SATHYAN, Dr.YASH SHAH, Dr.MEENAMBIGAI
- Double blind randomized placebo controlled trial of brimonidine in blunting IOP rise following Nd:Yag capsulotomy
- Dr.RITESH SANGHVI, Dr.SONAL AMBATKAR, Dr.MOHIDEEN, Dr.R.RAMAKRISHNAN
- Comparative study between C20-1 programme of the frequency doubling technology and humphery sita fast (24-2) programme in glaucoma screening
- Dr.ARUN KUMAR J, Dr.S.R.KRISHNA DAS, Dr.USHA KIM
- Elevated intraocular pressure and glaucoma in thyroid related orbitopathy

Posters

DR.LIONAL RAJ, DR.VENUGOPAL,
DR.R.RAMAKRISHNAN

- *Ophthalmic manifestations of cortico cavernous fistula – A case report*

DR.AMAR A KARKHANIS, DR.SHAMIK
A AMBATKAR, DR.R.RAMAKRISHNAN

- *Spontaneous extrusion of cysticercus cyst from an extra ocular muscle*

DR.USHA KIM, DR.HADI, DR.ATHEESHWAR DAS

- *Trilateral retinoblastoma managed with intrathecal therapy*

C.P.GUPTA AWARD SESSION

DR.R.SHARMILA, DR.HADI KHAZEZI,
DR.USHA KIM

- *Granulocytic sarcoma- A rare manifestation of leukemia - Clinical evaluation of 3 cases*

DR.B.KOSHAL RAM, DR.N.V.PRAJNA,
DR.M.SRINIVASAN

- *Comprehensive study on patients with keratoconus*

DR.SUNIL M S, DR.R.RAMAKRISHNAN ,
DR.N.VENUGOPAL, DR.C.SHIVAKUMAR

- *Causes of visual disability in rural school children in South India – A study*

Annual Meeting of Indian Eye Research Group

The Fisherman's Cove, Chennai,
August 20–22

Exclusive Meet on Ophthalmic Research

DR.V.R.MUTHUKARUPPAN

- *Immunopathogenic mechanism of uveitis associated with leptospirosis*

DR.P.SUNDARESAN

- *Four new PAX-6 gene mutations associated with aniridia in South India*

MS.ARPITHA SARAVANAN

- *Our studies of phenotypic markers from human corneal epithelial stem cells*

EYE ADVANCES

Mumbai, August 26–30

DR.MINU MATHEN

- *Phacoemulsification in subluxated cataracts*
- *Pearls on chopping soft cataracts*
- *Role of different irrigating choppers in bimanual phaco*

DR.HARIPRIYA

- *Challenges in converting to bimanual phaco*
- *PPC- Manual SICS Vs Phacoemulsification*

- *Effect of anterior capsule factor on PCO*
- *Nocardia endophthalmitis after cataract surgery*

XVI International Congress of Eye Research

Sydney, Australia, Aug 28–Sep 3

MS.RAMYA

Poster presentation on

- *Crystallin beta A3/A1 gene variants in South Indian population*

StrabiCon

Pune, September 11–12

DR.GURDEEP SINGH

- *Fresnel prisms for intractable diplopia*

DR.PRACHEE

- *Surgical results in large angle exotropia*

Seminar on Diabetic Retinopathy

Mettupalayam, September 18

Diabetic Retinopathy seminar was organised for Indian Medical Association, Mettupalayam

DR.SARAVANAN

- *Diabetic Retinopathy for Indian Medical Association*

Annual meeting of Ophthalmic Society of West Bengal

Kolkatta, September 26

DR.S.R.Krishnadas guest lecture on

- *Current concepts in glaucoma assessment*

25th Annual conference of Indian Association of Biomedical Scientists and International Symposium on Efficacious Drugs

Chennai, October 7–10

MR.P.MANIKANDAN

- *Human subconjunctival dirofilariasis*



Mr.P.Manikandan, Microbiologist,
Aravind-Coimbatore



Dr.Sathyan, Chief, Glaucoma Service,
Aravind-Coimbatore

Mewar-DRISHTI 2004

Udaipur, Rajasthan, October 10

27th Annual Conference of the Rajasthan Ophthalmological Society

DR.P.SATHYAN

- *Lets not forget gonioscopy- Asian perspective*

Seminar on Human Resource Management in health care direction, experience and challenges

Centre for Management of Health Services, Indian Institute of Management, Ahmedabad, October 14–16

DR.NATCHIAR, DIRECTOR-HR

- *Human resource innovations*

District Seminar on Avoidable Blindness

Organised by Rotary Club of Dindigul West, Dindigul, October 17

Mr. R. Meenakshi Sundaram participated in the seminar and an exhibition was set up on common eye diseases.

Pondicherry Ophthalmic Association Meeting

DR.R.VENKATESH

- *Normal tension glaucoma*
- *Optic nerve head changes in glaucoma*

American Academy of Ophthalmology Meeting

New Orleans, October 23–26

MR.R.D.THULASIRAJ

INTERNATIONAL FORUM

- *Innovations in eye care*
- At the International Council of Ophthalmology session,
- *Innovative ways to reduce the cost in eliminating cataract blindness*

Andra Pradesh State Ophthalmic Society and Southern Regional Ophthalmic Conference Meeting

Warangal, October

DR.VASUMATHY, INVITED SPEAKER

- *EVS recommendations – Are they still relevant today?*

Also moderated the session on talk on ROP screening criteria

- *Intravitreal triamcinolone – Have we aimed at a concise on its cure?*

DR.N.VEERABHADRA RAO

- *Visual outcome after TTT in subfoveal CNVM of non-ARMD etiologies*

DR.R.VENKATESH

Moderator for IC in SICS

- *Learning bimanual phaco*

International Orthoptic Meeting

Melbourne, November 15–20

DR.P.VIJAYALAKSHMI

- *Paediatric ophthalmology training at Aravind Eye Hospitals*

XIV Annual meeting of Glaucoma Society of India

Jalna, Maharashtra, November 20–21

DR.S.R.KRISHNADAS

- *Newer perimetric techniques and optical coherence tomography*

DR.NITIN

- *RNFL abnormalities detected by OCT in SWAP negative cases in early POAG*

DR.R.RAMAKRISHNAN

- *Cataract surgery in post filter eye*
- *Glaucoma in aphakia and pseudophakia*

DR.P.SATHYAN

- *Frequency doubling technology (FDT) perimetry, glaucoma and cataract*

DR.R.VENKATESH

- *Visual experience of combined surgery patients*

DR.GANESH V.RAMAN

- *Comparative analysis of phaco trab with foldable lens Vs rigid lens in POAG, ACG and pseudoexfoliation glaucoma*
- *Additive IOP lowering effect of Dorzolomite 2% - Observational study*
- *IOP changes at the end of 1 year in-patient undergoing phaco trab with foldable IOL in angle closure and open angle glaucoma (Poster)*

Karnataka Ophthalmological Society Conference

Karnataka, November 26

DR.SHASHIKANT SHETTY

- *Case series in surgical management of paralytic squint*

DR.S.R.RATHINAM

Guest lecture and key note address at the conference

- *Diagnostic challenges in uveitis*
- *Anterior uveitis*
- *Immunosuppressive in uveitis*

Pondicherry Ophthalmic Association Meeting

November

DR.R.VENKATESH, INVITED SPEAKER

- *Normal tension glaucoma*
- *Optic nerve head changes in glaucoma*

Pondicherry Tomorrow

Conference on Rediscovering

Pondicherry, Organised by CII

Pondicherry University, December 2

DR.G.VENKATASWAMY

- *Pondicherry tomorrow- Enabling rural health care through IT*

DR.R.D.RAVINDRAN

- *Infrastructure required for health tourism*

Seminar on Tourism

Pondicherry, December 17

DR.R.D.RAVINDRAN

- *Health tourism*

Transitions- TNOA Mid Year Seminar on Practice Management

Yercaud, December 26

Session on Managing Expectation - Patients & Staff

DR.G.NATCHIAR

- *Handling difficult patients & ensuring high patient happiness*

Session on Emerging clinical market opportunities

DR.P.NAMPERUMALSAMY

- *Disease perspective*

DR.R.D.RAVINDRAN

- *Diagnostic developments*

DR.M.SRINIVASAN

- *Treatment developments*

MR.R.D.THULASIRAJ

- *Market developments*

PUBLICATIONS

American Journal of Ophthalmology
VOL: 137 (6) 2004 JUN. p.1161-1162

SHUKLA, DHANANJAY

- *Radial Optic Neurotomy as Treatment for Central Retinal Vein Occlusion*

VOL: 137 (6) 2004 JUN. p.1167-1168

VEDANTHAM, VASUMATHY

- *Ciprofloxacin in Endophthalmitis: an emerging alternative*

VOL: 138 (1) 2004 JUL. p.147-149

SHUKLA, DHANANJAY; SINGH, JATINDER; KOLLURU, CHANDRA MOHAN; KIM, RAMASAMY;

NAMPERUMALSAMY, PERUMALSAMY

- *Transpupillary thermotherapy for Subfoveal Neovascularization Secondary to Group 2A Idiopathic Juxtafoveal Telangiectasis*

VOL: 138(5) 2004 NOV. p.641-648

RENGARAJ V, RADHAKRISHNAN M, AU EONG KG, SAW SM, SRINIVASAN A, MATHEW J, RAMASAMY K, PRAJNA NV.

- *Visual experience during phacoemulsification under topical versus retrobulbar anaesthesia: results of a prospective, randomised, controlled trial.*

Archives of Ophthalmology

VOL: 122 (4) 2004 APR. p.581-586

NIRMALAN, PRAVEEN K; KATZ, JOANNE; ROBIN, ALAN L; TIELSCH, JAMES M; NAMPERUMALSAMY, PERUMALSAMY; KIM, RAMASAMY; NARENDRAN, V; RAMAKRISHNAN, RENGAPPA; KRISHNADAS, RAMASAMY; THULASIRAJ, RAVILLA D; SUAN, ERIC

- *Prevalence of Vitreoretinal Disorders in a Rural Population of Southern India: the Aravind comprehensive eye study*

VOL: 122 (4) 2004 APR. p.615-620

PIZZARELLO, LOUIS; ABIOSE, ADENIKE; FFYTCH, TIMOTHY; DUERKSEN, RAINALDO; THULASIRAJ, R.D; TAYLOR, HUGH; FAAL, HANNAH; RAO, GULLAPALI; KOCCUR, IVO; RESNIKOFF, SERGE

- *Vision 2020: the right to sight: a global initiative to eliminate avoidable blindness"*

British Journal of Ophthalmology

VOL: 88 (3) 2004 MAR. p.438-439

NIRMALAN, P K; LALITHA, P; PRAJNA, V N

- *Can antiseptic scrubs between cataract surgeries reduce bacterial load on surgical gloves to safe levels*

VOL: 88 (5) 2004 MAY p.721-722

RATHINAM, S R; RAO, N A

- *Tuberculous Intraocular Infection Presenting with Pigmented Hypopyon: a clinicopathological case report*

VOL: 88 (5) 2004 MAY p.724-725

VEDANTHAM, V

- *Periocular Corticosteroid Therapy: comments*

VOL: 88 (8) 2004 AUG. p.989-994

NIRMALAN, P K; ROBIN, A L; KATZ, J; TIELSCH, J M; THULASIRAJ, R D; KRISHNADAS, R; RAMAKRISHNAN, R

- *Risk Factors for Age-Related Cataract in a Rural Population of Southern India: the Aravind Comprehensive eye study*

VOL: 88. 2004 OCT. p.1237-41

NIRMALAN, PRAVEEN K; KRISHNADAS, RAMASAMY; RAMAKRISHNAN; THULASIRAJ, RAVILLA D

- *Utilisation of eye care services in Rural South India*

BMC Med Genetics

VOL: 16 (5) 1 2004 APR. p.9

NEETHIRAJAN G, KRISHNADAS SR, VIJAYALAKSHMI P, SHASHIKANT S, SUNDARESAN P.

- *PAX6 gene variations associated with aniridia in south India.*

Bull World Health Organ

VOL:82 (4) 2004 APR. p.259-264

VIJAYALAKSHMI, PERUMALSAMY, ANURADHA, RAJAMANICKAM, PRAKASH, KARTHIK

- *Rubella serosurveys at three Aravind Eye Hospitals in Tamil Nadu, India.*

Cornea

VOL: 23 (1) 2004 JAN. p.81-83

SRINIVASAN, M; PATNAIK, LOLLY

- *Fixed Dilated Pupil-Urrets-Zavalia Syndrome in Corneal Dystrophies*

Current Opinion in Ophthalmology

VOL: 15 2004 p.321-327

SRINIVASAN, M

- *Fungal keratitis*

EnVision

VOL: 9 (1) 2004 Fall p.6-8

ILANGO, K

- *Low Vision Perspective of Retinitis Pigmentosa in India*

Indian Journal of Ophthalmology

VOL: 52 (1) 2004 MAR. p.83-85

VEDANTHAM, VASUMATHY; VENKATESH, R

- *Digital Ophthalmic Photography*

VOL: 52 (1) 2004 MAR. p.87

RATNAGIRI, PRAVEEN KRISHNA

- *Suture and Surgically Induced Astigmatism after Cataract Surgery*

VOL: 52 (2) 2004 JUN. p.163-167

NIRMALAN, PRAVEEN K; SHEELADEVI, SETHU; TAMILSELVI, VELAYUTHAM; VICTOR, AROCKIA C L; VIJAYALAKSHMI, PERUMALSAMY; RAHMATHULLAH, LAKSHMI

- *Perceptions of Eye Diseases and Eye Care Needs of Children among Parents in Rural South India: the Kariapatti pediatric eye evaluation project (KEEP)*

VOL: 52 (2) 2004 JUN. p.173-175

VEDANTHAM, VASUMATHY

- *Much Ado about Ciprofloxacin and Acinetobacter*

VOL: 52 (2) 2004 JUN. p.175

VEDANTHAM, VASUMATHY; RATNAGIRI, PRAVEEN KRISHNA

- *The Sweep-VEP: a faster estimation of visual acuity in preverbal children*

VOL:52(4) 2004 DEC. p.271-280

JANAKARAJ KANAGAVALLI, ESWARI PANDARANAYAKA, SUBBIAH RAMASAMY KRISHNADAS, SANKARAN KRISHNASWAMY AND PERIASAMY SUNDARESAN

- *A Review on Genetic and Structural Understanding of the Role of Myocilin in Primary Open Angle Glaucoma.*

VOL: 52 (3) 2004 SEP. p.205-210

SHUKLA, DHANANJAY; KOLLURU, CHANDRA MOHAN;

SINGH, JATINDER; JOHN, RAJESH K; SOMAN, MANOJ; GANDHI, BANUSHREE;

KIM, R; NAMPERUMALSAMY, PERUMALSAMY

- *Macular Ischaemia as a Marker for Nephropathy in Diabetic Retinopathy*

VOL: 52 (3) 2004 SEP. p.247-251

NAMPERUMALSAMY, PERUMALSAMY; KIM, RAMASAMY; KALIAPERUMAL, KUMARASAMY; SEKAR, ALAGARSAMY; KARTHIKA, ARUMUGAM; NIRMALAN, PRAVEEN K

- *A Pilot Study on Awareness of Diabetic Retinopathy among Non-Medical Persons in South India: the challenge for eye care programmes in the region*

VOL: 52 (3) 2004 SEP. p.260-262

VEDANTHAM, VASUMATHY

- *Phacoendophthalmitis*

Investigative Ophthalmology and Visual Science

VOL: 45, (10) 2004 Oct. p.3442-3445

PRAVEEN KUMAR NIRMALAN, RAJESH KUMAR JOHN, VIJAYA KUMARI GOTHWAL, SETHU

BASKARAN, PERUMALSAMY VIJAYALAKSHMI, AND LAKSHMI RAHMATHULLAH

- *The Impact of Visual Impairment on Functional Vision of Children in Rural South India: The Kariapatti Paediatric Eye Evaluation Project*

VOL: 45, (10) Oct. p.3599-3607

SATHIYAVEDU T. SANTHIYA, SHYAM MANOHAR MANISAstry, DEEPIKA RAWLEY, RAGHUNATHAN MALATHI, SHARMILA ANISHETTY, PUTHIYA M. GOPINATH, PERUMALSAMY VIJAYALAKSHMI, PERUMALSAMY, NAMPERUMALSAMY, JERZY ADAMSKI, AND JOCHEN GRAW

- *Mutation Analysis of Congenital Cataracts in Indian Families: Identification of SNPs and a New Causative Allele in CRYBB2 Gene*

VOL: 45(12) 2004 DEC. p.4273-6.

NIRMALAN PK, KATZ J, ROBIN AL, RAMAKRISHNAN R, KRISHNADAS R, THULASIRAJ RD, TIELSCH JM.

- *Female reproductive factors and eye disease in a rural South Indian population: the Aravind Comprehensive Eye Survey.*

Journal of American Association for Paediatric Ophthalmology and Strabismus

VOL: 8 (1) 2004 FEB. p.18-19

VIJAYALAKSHMI, P; NIRMALAN, PRAVEEN AND KOTHARI, MIHIR T

- *Paediatric Ophthalmology and Strabismus in India*

VOL: 8 (4) 2004 AUG. p.371-377

SRIVASTAVA, KULDEEP KUMAR; SUNDARESH, KANNAN AND VIJAYALAKSHMI, PERUMALSAMY

- *A New Surgical Technique for Ocular Fixation in Congenital Third Nerve Palsy*

Retina

VOL: 24 (3) 2004 JUN. p.467-469

SHUKLA, DHANANJAY; MOHAN, K CHANDRA; RAO, NAGESWARA; KIM, R; NAMPERUMALSAMY, P; CUNNINGHAM JR., EMMETT T

- *Posterior Scleritis causing Combined Central Retinal Artery and Vein Occlusion*

Indian Journal of Medical Microbiology

VOL: 22 (2) 2004 APR. p.123-125

BHARATHI, M J RAMAKRISHNAN, R; MEENAKSHI, R; VASU, S

- *Nocardia Asteroides Canaliculitis: a case report of uncommon aetiology*

VOL: 22 (4) 2004 OCT. p.226-230

MANIKANDAN, P BHASKAR, M; REVATHY, R; JOHN, R K; NARENDRAN, V; PANNEERSELVAM, K

- *Acanthamoeba Keratitis - A Six Year Epidemiological Review from a Tertiary Care Eye Hospital in South India*

VOL: 22 (4) 2004 OCT. p.231-237

LALITHA, P; RATHINAM, S R AND SRINIVASAN, M

- *Ocular Infections due to Non-Tuberculous Mycobacteria*

Ophthalmology

VOL: 111 (9) 2004 SEP. p.1778-1781

NIRMALAN, PRAVEEN K; KATZ, JOANNE; TIELSCH, JAMES M; ROBIN, ALAN L; THULASIRAJ, RAVILLA D; KRISHNADAS, RAMASAMY; RAMAKRISHNAN, RENGAPPA

- *Ocular Trauma in a Rural South Indian Population: the Aravind comprehensive eye survey*

Community Eye Health

VOL: 17(50) 2004 p.17-18

BR SHAMANNA AND R.MURALIKRISHNAN

- *Childhood Cataract: Magnitude, Management, Economics and Impact*

IAPB News

VOL: 44 2004 OCT. p.5-6

SARAVANAN S

- *An Assessment of Skills of Mid-Level Ophthalmic Personnel (MLOP) in India*

Journal of Human Genetics

VOL: 49 2004 NOV. p.647-649

NEETHIRAJAN G, MARTIN COLLINSON J, KRISHNADAS SR, VIJAYALAKSHMI P, SHASHIKANT SHETTY, REENA CHANDRASHEKHAR AND SUNDARESAN P

- *De-Novo deletions in the paired domain of PAX6 in South Indian aniridic patients.*

Molecular Vision

VOL: 10 2004 DEC. p.1005-1010

PERIASAMY SUNDARESAN, ASIM KUMAR SIL, ALISDAIR R. PHILP, MARY A. RANDOLPH, GOVINDAPPA NATCHIAR, PERUMALSAMY NAMPERUMALSAMY

- *Genetic analysis of oculocutaneous albinism type 1 (OCA1) in Indian families: two novel frameshift mutations in the TYR Gene*

Ophthalmic Epidemiology

VOL: 11 2004. p.369-380

MURALIKRISHNAN R, RENGARAJ VENKATESH, PRAJNA NV, FRICK KD

- *Economic Cost of Cataract Surgery Procedures in an Established Eye Care Centre in Southern India.*

PARTNERS IN SERVICE

The number of institutions and organisations working with Aravind towards the eradication of needless blindness continues to grow even as long-standing collaborators, supporters and friends find new ways to strengthen the partnerships. Aravind gratefully acknowledges their continued commitment and assistance in bringing more light into the world.



Ln. Jimmy Ross with Mr. Muralikrishnan, Mr. Kaliyaperumal and Mr. R.D. Thulasiraj



Dr. S. Aravind and Dr. G. Venkataswamy with Ms. Victoria Sheffield and Mr. John Barrows at the International Eye Foundation office at Washington

For Service Delivery, Human Resource Training and other developmental activities

Acumen Fund, USA
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Canadian International Development Agency
Carl Zeiss Meditec, Germany
CBM International, Germany
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Indian Institute of Management, Bangalore
International Federation of Eye Banks
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Francis I. Proctor Foundation for Research in Ophthalmology
Indian Council of Medical Research
International Centre of Eye Health, London
Madurai Kamaraj University
National Eye Institute, USA
Royal Tropical Institute, Netherlands
University of Iowa, USA
World Health Organization, USA

OTHER VOLUNTEERS AND VISITORS

From Seva Foundation



The Seva team with Dr. G.Venkataswamy and Dr.G.Natchiar in Aravind-Pondicherry



Mr.G.V.Rao, Ms. Kathy Spahn, Dr. Eugene M. Helveston with Dr.M.Srinivasan



Ms. Anne Naughton with Ms.Preethi Pradhan, Ms.Santha, Ms.Amutha, Mr. R.D.Thulasiraj, Ms.Chitra and Ms. Dhivya



Ms. Sally Parsley with Ms. Muthumathi and Mr.Kirubanithi

Seva Foundation has been a long standing partner of Aravind. Having been founded around the same time, both organisations grew together with mutual support. Dr. Larry Brilliant, one of the founders of Seva and his daughter Iris, Seva Board members Mr. Paul & Mrs.Diane Garrett, Dr.Martin Spencer of Seva Canada with his daughters Justin and Laura, Dr.Suzanne Gilbert, the head of Seva's Centre for Innovation in eye care and Mr.Anthony J. Kozlowski, the Executive Director of Seva Foundation visited Aravind Eye Hospitals at Pondicherry and Madurai and visited several of the outreach activities.

ORBIS International is forging a strong relationship with Aravind in promoting their area of focus in India – paediatric ophthalmology and management in eye care. From the country office Dr.G.V.Rao, Country Director, Dr.Bhagawat, Senior Program Manager, Mr.Kamalesh – Program Manager, Ms.Sangeeta Pinto and Ms.Neha Tyagi made several visits to Aravind. Visitors from ORBIS headquarters and their other country offices included

- A team of delegates from ORBIS consisting of Ms.Kathy Spahn, President and Executive Director of ORBIS, Dr. Eugene M.Helveston, M.D., Professor Emeritus of Ophthalmology at the Indiana University School of Medicine
- Dr.Leshan Tan, China Country ORBIS Director
- Dr.Abu Raihan, Deputy Director of programmes, ORBIS International, Bangladesh

They also sent volunteer Ms.Karen Mc.Main , Chief of Orthoptics, The Izaak Walton Killam Hospital for Children – Canada to give a hospital based training at Aravind-Madurai.

They are also using the Aravind model to promote better eye care in China. Towards this purpose an 18 member delegation from ORBIS-China visited Aravind Eye Care System in the month of May. The purpose of the visit was to gain familiarity with the Aravind model of eye care delivery and specifically to gain an understanding of childhood blindness, its prevention and cure.

- Mr.Carl Byker, PBS film maker, US and his film crew visited Aravind-Pondicherry to film Dr.G.Venkataswamy for a series called 'Real Heroes' slated for release in September. They also visited Aravind-Madurai to film the activities at the hospital and Aurolab.
- Ms.Ali King of Zurich Financial service, UK was here to review ZFS support to AECS.
- Mr.Jerry Jones, Seva Foundation, USA
- Ms.Ann Naughton, Head, International Resource Centre & Journal, ICEH, UK and Ms. Sally Parsley, Webmaster, ICEH, UK were at LAICO to discuss and see how they could collaborate with VISION 2020 e-resource centre website.
- Mr.Andrew Tait of Sight Savers International, UK
- Princess Irene of Spain visited Aravind-Pondicherry
- Dr.Hans Limburg, Netherlands
- Mr.John Inman from Oregon, USA conducted a workshop on 'experiential learning' for the Aravind paramedic staff.
- Mr.Bernd Bauerfeld, Civil Engineer from FEDINA-BORDA came to study the effectiveness of the DEWATS system (**D**ecentralized **W**astewater **T**reatment **S**ystem) at Aravind-Pondicherry.
- Acumen Fund is a not-for-profit enterprise focused on improving the lives of the poor around the world. They operate like a venture capital firm - investing philanthropic resources in innovative social entrepreneurs through



Mr. John Inman with Ms.B.Renuka, Ms.P.Gomathy and Ms.M.Lakshmi



Dr. Thomas Lietman and Dr.Jeya Chidambaram with Dr. Sundaresan

Dr. Bill Stewart, Susie Stewart and friends visiting Aravind-Pondicherry



three areas (Health Technology changing lives, economic and civic enterprises and water innovations) with a goal of social change rather than financial return. A group of Investors led by Jacqueline Novogratz visited Aravind Eye Care System Madurai, to see both Telemedicine and the Hearing Aid projects into which they have "invested".

- Mr.Janat Shah Mr.L.S.Murthy from Indian Institute of Management, Bangalore were in Aravind to meet and interview Dr.G.Venkataswamy for a case study on Operations Management. Later a faculty team from there came and offered a one day workshop for the management interns at Aravind.
- Mr.Dinoo Gandhi, Honorary Secretary, National Association of Blind (NAB), Mumbai, visited Rotary-Aravind International Eye Bank at Aravind-Madurai to discuss 'The Launching of Nationwide Corneal Transplantation Surgery' with finance assistance from Reliance Infocomm to perform free corneal transplant surgeries at selected eye hospitals.
- Dr.John Kempman, Epidemiologist, Wilmer Eye Institute, Johns Hopkins University.
- Mr.Jeff Weiss, a SEVA Volunteer came to work on developing a Diabetic Retinopathy Model and his wife Anita, helped in planning activities for the Aravind-Crèche.
- Mr.Peter Renew, Programme Manager from Sight Savers International came to discuss a scholarship programme for SICS Training programme which may be funded by Standard Chartered Bank as part of "Seeing is Believing Programme".
- His Excellency Lt Gen (Retd) M.M.Lakhera PVSM, AVSM, VSM Lt.Governor of Pondicherry visited Aravind – Pondicherry on 20th August.
- Mr.Robert Tilden from Indonesia (volunteer to Aravind in the early days) came to Aravind-Pondicherry to meet Dr.G.Venkataswamy.
- A team from the Danish Foreign Affairs Committee MP Mr.Jann Sjursen, Chairman, MP Mr.Henrik Vestergaard, MP Ms.Helga Moos, MP Mr.Jeppe Kofod, MP Mr.Jesper Langballe, MP Mr.Keld Alberchtsen, Secretary for the Committee, Ms.Anja Riber Skydt, Intranational Consultant, Mr.Jacob Stahl Otte, Under – Secretary, Ambassador Ib Petersen, Ambassador Michael Sternberg, Counsellor Peter Ellehoj Visited Aravind – Pondicherry on November 7. They were received by the Director of Aravind Eye Care System, Dr.P.Namperumalsamy with whom they held a discussion regarding the WDF projects in Aravind-Madurai and Tirunelveli.
- Dr.Bruce Mac Leod, Dr.Winfried Amoaku, Dr.Michael Hayward, Dr.Jenny Watts, from UK were at Aravind as MRCO Examiners. They also delivered guest lectures.
- Dr.David Heiden, California Pacific Medical Centre, San Francisco
- Mr.Raj Kondur, Chairman of Nirvana Business Solution, Bangalore
- Dr.Soliman Aref, ED and Dr.Mutasim Alireza, MD, Magrabi Hospital and Centres, Cairo were here from November 30 to December 2, to study the Aravind Model and Aurolab.
- Dr.Thomas Lietman and Dr.Jaya Chidambaram, from Franisl.Proctor Foundation, San Francisco came to Aravind to discuss collaborative research on 'Use of multiply PCR in diagnosis of corneal infection'. Dr.Brett Shapiro and Dr.Ying Pan from the same institute also joined them to discuss about initiating the 'Steroids for Corneal ulcer trial' a clinical research study to look into the effects of steroids in treating bacterial corneal ulcers.
- Dr.Kang Zhang, Asst. Professor, University of Utah, USA, visited Aravind for the FEVR Genetic Study. With Dr.D.Shukla he visited Raigarh for FEVR family genetic evaluation of study patients. They also visited Theni for evaluation of the families from Kerala.

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