









& RIGOUR . MADE IN INDIA . SEEING TOMORROW . LOOKING AHEAD . SO THAT ALL MAY SEE

*my eyes  
are a garden  
lush with visions,  
growing dreams*



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The figures quoted in this book are only intended to give a perspective on visual impairment, some of them are based on literature, review or research.

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L V PRASAD EYE INSTITUTE

INDIA



S O

T H A T

A L L

M A Y

S E E

L V PRASAD EYE INSTITUTE

INDIA



*see the joy:  
a gaze of beauty*









*through a window  
a funfair  
beckons gaily*









*what is the colour  
of purity,  
of wonder?*









*life is in sight  
I look forward,  
not back*











*Heroes and Goddesses  
walk across  
the mind,*

*shadows  
on a screen  
spin fables of magic.*

*the world  
resounds  
the drama unfurls*

*behold his old vision,  
her young sight,  
gaze as one*

*how empty life would be  
if we could not see*



HE HAD BEEN THINKING ABOUT IT FOR DAYS



*Bridge over the Krishna River, Vijayawada*

"...THERE WAS... THIS IMMENSE SENSE OF EXCITEMENT AT THE  
PROSPECT OF DOING SOMETHING IN INDIA..."





*The Kismatpur site, allotted by the state government for LVPEI*



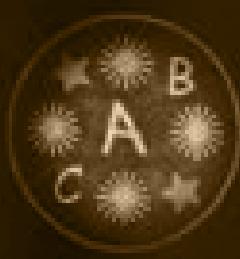
*The foyer of the Tertiary Centre at Vijayawada*



"IT WOULD NOT LOOK OR FEEL ANYTHING LIKE A HOSPITAL.  
IT HAD TO BE SUNNY AND PLEASANT."

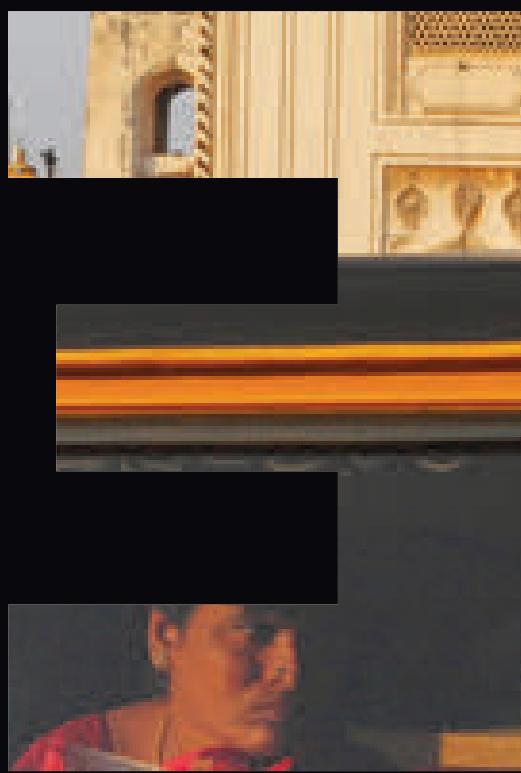
A person is sitting at a desk in a dimly lit room, looking down at a laptop screen. The scene is mostly in shadow, with a bright light source from behind the person creating a strong lens flare effect. The person's face is partially visible in profile.

"WHERE CLINICAL PRACTICE DRAWS FROM AND  
FEEDS BACK INTO RESEARCH"





"HOW DO YOU BALANCE EXCELLENCE WITH EQUITY?"





*I wander  
among scattered thoughts  
... a fragment comes to me*



*Gullapalli N Rao, Founder and Chair, L V Prasad Eye Institute*

Humankind has an inherent vision: what we call the mind's eye. Through it, we 'see' our memories, wield our imaginations. With its unique gaze, we connect our inner selves with the world around us. A layered, abundant world that then feeds our souls a rich kaleidoscope of sensory delights. The doorway to this absorbing experience is through our eyes, through the wonderful gift of sight. Only think: the pleasure of looking upon a limitless horizon, or of playing peek-a-boo with a child; beholding a graceful mudra formed by a dancer's hand, or the morning dew gently adorning a petal; seeing the smile on a loved one's dear face, or a tug of a puppeteer's string that makes one laugh till one cries... a mosaic of glimpsed moments that make up a life, precious as life itself.

Imagine what it would be like if this vision was darkened... in place of light and image, only darkness, or a hazy hue of reality. Among those who risk losing this gift, there is a passionate need to retain seeing, to hang on to the world of colour and shapes and shadows. But what if standing on the brink of blindness, a cure is beyond one's means? What if help is miles away? What if the debilitating darkness can so easily be turned into light – and you don't even realise it?

As powerful as the yearning to see, is the will of some to restore sight for others. At LVPEI, the journey of healing is joyous. It is a journey we have made our own, investing our skills and emotions along the way into bringing light to peoples' lives. Slicing across geographical and imagined distances, striving for the highest order of caring, especially for those who have nowhere to turn. Helping create enriched, independent personalities. Changing perspectives, altering lives.

Transforming the ways people see.

Transformations emerge from excellence, and social change, from reaching that excellence to the largest numbers possible.

SO

THAT

ALL

MAY

SEE

L V Prasad Eye Institute has a vision: 'so that all may see'. Our raison d'être is the simple belief that everyone has a 'Right to Sight'. So, excellence in healthcare blends with equitable distribution of that care: for 25 years, the Institute has offered the highest quality of care to prevent avoidable blindness, and to help those with unavoidable vision loss to achieve their full potential. Everyone who comes to LVPEI gets the same high quality care, irrespective of their ability to pay.

LVPEI lives and breathes because of the tireless enthusiasm and drive of the core team, supported in their task by a sophisticated level of specialisations, surgeries and outpatient facilities. Enhancing the care given – widening its range, deepening its effectiveness – are education and training programs for health workers and medical professionals. We navigate the pathways of eye care through an ingenious financial model that optimises costs and efficiency without compromising quality. And we're backed by cutting edge research and international collaborations with health care organisations, internationally renowned educational and research institutes and industry. All this keeps us firmly on the path of excellence. And because there is a leaning towards community health, equity is on the table too. A unique pyramid structure allows state-of-the-art eye care to percolate to remote rural areas in Andhra Pradesh, providing access to healthcare like never before. Our programs are unique, recommended by multiple global bodies, including the World Health Organization.

All this adds up to the opportunity for thousands of blind and visually impaired people to vastly improve their lives. Access and opportunity: a winning combination.

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India may have  
the most number  
of problems...

But it also has the  
most number of  
solutions.

Gullapalli N Rao

1.

# HOMELAND CALLING

THE BEGINNING OF THE INSTITUTE

A photograph showing a group of pigeons on a paved ground in front of a light-colored building. The building features several arched windows and a balcony with a railing. Some pigeons are perched on the balcony railing and others are on the ground. The scene is set outdoors under a clear sky.

**AN ALCHEMY OF VISION . 46**

**THE HOMECOMING . 52**

**EARLY DAYS . 70**

*Sightlines . 84*

*Envisioning the Six Arms . 86*

*Spotlight . 88*

"What we were thinking was something very big. We were going to put all our savings in there. It wasn't just putting money, he [Dr. Rao] was putting himself into this project... I wasn't even 30 then and the children were young. That was something we did discuss a lot. Then we thought, we are doing something good, so everything should work out." PRATIBHA RAO

It was 1981.

Gullapalli N Rao, practicing ophthalmology and the sub-specialty of cornea, was leading the Corneal Research Program at the University of Rochester, USA. He was a well-respected academician, doing cutting-edge research, and with a significant teaching schedule. He, along with his wife, Pratibha, was also starting to think of ways to improve the quality of eye care in his home country, India. He needed financial resources and he needed commitment (this last, he had by the truckload). Every few months, he would make a trip to India to do the groundwork. Every visit was a rush of meetings with old friends and contacts, bureaucratic hurdles and infinite knowledge-gathering, while spreading the idea of the birth of a new and different eye care institute among potential supporters.

In the meantime, it was down to brass tacks: funding. Dr. Rao, Pratibha Rao, and a group of like-minded friends and colleagues set up the Indo American Eye Care Society in 1984, a not-for-profit body that would be crucial in this task. Dr. Brijen Gupta, a retired professor from the University of Rochester, helped them set up and register the society. Together, this determined lot of people approached different groups for donations: Indians living in the US, alumni from the Guntur Medical College (Dr. Rao's alma mater) settled in the US, Indian ophthalmologists in the US, corporate support from ophthalmic companies (till today Bausch & Lomb of Rochester remains the biggest corporate supporter of LVPEI) and other friends in Rochester, New York. Pratibha Rao stood solidly behind Dr. Rao's plans: they donated all their savings from the last four years of their stay in the US to the project, and



...We all thought he  
wouldn't be able to do it.

also sought out contributions from others of their acquaintance and family. The funds thus raised were used for buying equipment to stock up the Institute at its inception. Simultaneously, a not-for-profit charitable trust called the Hyderabad Eye Institute was born, starting a drive to acquire land and mobilise resources from within India.

Suddenly, what was an ophthalmologist's dream of coming back to his motherland became much more than that. It became a mission to bring world-class eye care to the people of India.

Now that the idea of the Institute was taking a definite shape, it needed to become brick and mortar. An encounter with the then Chief Minister N. T. Rama Rao led to the exciting possibility of the government providing land for the Institute at a subsidised cost. ANRICH, a government cell that encouraged NRIs to return to India and invest in its growth, allotted a seven-acre parcel of land in Kismatpur village on the outskirts of Hyderabad for the hospital. However, it took nearly 12 frustrating years for the official transfer of this land to the Hyderabad Eye Institute. Fortunately, around this time, in August 1985, Dr. Rao was introduced to Ramesh Prasad, son of the famous movie director and producer of the time, Sri L V Prasad, through a mutual friend, Dr. Ratnam Mullapudi. (Dr. Mullapudi is a cardiac surgeon and was living in Iowa state in the US; he eventually moved to Hyderabad to establish the Usha Mullapudi Cardiac Centre). The Prasads and Dr. Rao met in Chennai, which resulted in a contribution of Rs 1 Crore [Rs 10 million] by the Prasads to the Institute, as well as five acres of land in Banjara Hills – the veritable heart of the city of Hyderabad. "When he told me he wants to return to serve our people, forsaking everything, my mind and heart said this is the man for us," says Ramesh Prasad.

In recognition of this generous contribution, the Trustees of Hyderabad Eye Institute decided to name the new institute after their benefactor. Thus was born the L V Prasad Eye Institute.

So the 40-year old Dr. Rao relinquished his thriving career and comfortable life in America to fulfil his dream. His young wife, who never once faltered in her support of his dream, endorsing it in word and deed, moved with their children and made Hyderabad her new residence. Bolstered by her encouragement, and with ideals shining in his eyes, he returned home.

It was an 'alchemy of vision', as Henry Kissinger had said.



People think that if you go to America, you never come back. But in our case, our living there has inspired us to come back and do something here. GULLAPALLI N RAO

GULFARIN N. TWO  
47 RIVER DRIVE  
ROCHESTER, NEW YORK 14618





Pratibha Rao with the members of the Indo American Eye Care Society: Manuel Del Cerro, YM' Jay, H V Janardhan, Gullapalli N Rao and Brijen Gupta.



ROCHESTER WING

Gunter Medical College  
Rochester Wing

## THE HOMECOMING

Back in Hyderabad, Dr. Rao got down to the business of realising his dream. He gathered a team of architects, engineers and contractors. On October 17, 1986 the foundation stone for the new Institute was laid. The first shovel went into the ground on December 6, 1986 and the first 50,000 sqft. of construction was completed by June 1, 1987. The first patient was seen on that very day.

Bringing the medical equipment purchased in the US into the country without paying the exorbitant customs duties in place at the time was a big obstacle. The equipment was free, its transport had been arranged, but it was not allowed into the country! It took the combined efforts of many friends and supporters to overcome this problem, and exempt LVPEI from the duties. Dr. Satish Gupta, the first medical colleague of Dr. Rao, spent much time shuttling between Delhi and Cochin, and at the last moment, the entire shipment was finally released, and fitted into the labs and treatment rooms of the new hospital. Working (as became the norm for LVPEI) in a phased manner with a lead time, a very unique model of hospital finally opened its doors, sparkling and ready for patients.

LVPEI had found a home at last.

12<sup>th</sup> THE HINDU, Tuesday, June 26, 1990

## Physicians exchange programme: result of NTR's trip to U.S.

From Our Special Correspondent

HYDERABAD: June 25.

Proposed fit an Indo-United States physician exchange programme, the setting up of an international centre for medical research and training at Hyderabad and an ophthalmic hospital with super-specialities were under discussion, following the visit of the Chief Minister, Mr. K. Rama Rao, to United States.

In a statement made in the Assembly today the Chief Minister said latest proposals from the University of Pennsylvania and Eastern Michigan University for closer cooperation in the field of higher education and understanding the importance of vocational courses.

The Speaker, Mr. T. Venkata Ramayya, agreed to a suggestion by the Leader of the Opposition, Mr. A. Madan Mohan, for a half-hour debate on the Chief Minister's two-week tour of the United States.

Mr. Rama Rao said he had secured an unprecedented public response from Indians in the United States, particularly Telugus. He said he was convinced that non-resident Indians, particularly Telugus abroad, would share their experience, entrepreneurship and influence for the larger good of Andhra Pradesh.

He said the specific projects proposed include manufacture of fibre and resin composites,

high temperature paints with German know-how, dairy creams and food processing, computer software and software research and manufacture of refined chemicals.

Entrepreneurs had expressed apprehension about difficulties, logistic delays, payment implementation, and enough details about financial accommodation, incentives, and infrastructure facilities available. They also expressed misgivings about the Central Government being indifferent to the recommendations made by the State Government for defence, irrigation and industrialisation and other Central assurances. These concerns were cleared during the detailed discussions Mr. Rama Rao had.

The Chief Minister said he visited New York, Houston, San Francisco, Los Angeles, St. Louis, Chicago and Denver, and in all these places, about 800 non-resident Indians interested in setting up business attended the meetings, of which a total of 102 were identified as serious minded entrepreneurs who may be keen on participating in industrial ventures in Andhra Pradesh.

Under the Indo-US physician exchange programme, non-resident Indian physicians in the U.S. would visit Andhra Pradesh periodically to participate in on-going post-graduate teaching programmes and would be treated as

honorary guests. They would also approach hospitals and workshops to update the knowledge of the practicing physicians. Visiting scientists of the United States agreed to donate medical textbooks, standard medical journals and periodicals, audio and visual tapes, and sponsored education of residents.

Centre for medical research, A. Venkateswaran called Science and Health Applied Research and Education had submitted proposals for establishing an international centre for medical research at Hyderabad. This centre can easily house 200 beds.

At New York, Dr. Chittapalli K. Rao, an Associate Clinical Professor of Ophthalmology, submitted a proposal for a 300-bed eye hospital, including a school for blind and research on the prevention of blindness of a kind of Indian culture.

The Chief Minister said his official delegation consisted of himself, Ministers T. L. Shinde, Industries Secretary; U. B. Nagarkonda, Press Secretary; Dr. P. Venkateswaran, Special Secretary to the Chief Minister and Dr. A. Appa Rao, Deputy Inspector-General of Police, Development Secretary Mr. S. Parvathi, Chairman, State Finance Corporation, Dr. V. S. George Reddy, Managing Director, Industrial Development Corporation and Mr. D. Venkateswara Rao, president of the Federation of Andhra Pradesh Chambers of Commerce and Industry.

## **NRIs to start eye hospital in city**

#### Non-Traumatic

**Hydrocephalus** A multi-center network of 25 hospitals and research institutes sponsored by a group of Non-Believers. Information from the 1972 and 1976 surveys is presented in the *Trans. Danes*.

The Institute and L. V. French Eye Institute are in multi-stage eye bank hospital protocol with an

estimated amount of his services, the Institute Director, Dr Gokhale's P. Bus, will receive on Monday. The Institute has been named after the donor accepted Mr L. V. Prasad, who had donated Rs 1,000 and five acres of land for the project.

series of trials for the project. Out-patient services like infant surgery, intracranial lens implantation, cataract surgery for refractive errors, plastic surgery, maxillo-ophthalmology and a contact lens clinic would be opened next month. In the second phase later this year,

their prayer operations. There are over seven thousand other various libraries and two larger ones would be set up for added

Dr Ban said the aim was to provide high quality eyecare, post-graduate training in optometry, research, training for visual rehabilitation of the blind and to provide a base for investigation into causes and treatment of some blinding eye diseases.

Over 200 US based optometrists have agreed to visit the institute periodically and provide appropriate medical assistance and consultation. The institute will also collaborate with the Indo-American Eye Care Society, Nova Foundation of Michigan, Indian National Optometric Forum and associations of Indian origin in the US.

Tuesday 26-5-1987

مِحْفَلٌ مِحْفَلٌ

سینے پارک میں موٹیا بند کا چیر انگریز آپریشن  
ایک تھنھٹہ بعد ہر یونہد صبح سو ان کام ہے جو  
لیکر اکٹھائیں ہیں سارے کاموں کا دوز چینا ہے

PRO-AMERICAN  
LIFE-CARE SOCIETY, INC.



invite you to join in supporting authority and in education and promote brotherhood among the peoples of Earth, now by advancing further the practice of brotherhood.





THE UNIVERSITY OF ROCHESTER  
**MEDICAL CENTER**

SCHOOL OF MEDICINE AND DENTISTRY • SCHOOL OF NURSING  
STRONG MEMORIAL HOSPITAL

100 UNIVERSITY AVENUE  
ALBANY NY 12204  
(518) 437-7000

Cancer Research Laboratory  
Box 334, 601 Elmwood Ave  
Rochester, NY 14642

March 5, 1985

To:  
The Secretary  
Ministry of Health and Family Welfare  
Government of India  
Nirman Bhavan  
Maulana Azad Road  
New Delhi 110011  
INDIA

Dear Sir:

I am an ophthalmologist currently working in the U.S. and will be returning to India in November of this year to set up a non-profit charitable trust eye hospital and research centre in Hyderabad. The name of the trust is Hyderabad Eye Institute and has already been registered and has been certified by the Director of Medical Education, Government of Andhra Pradesh as a charitable non-profit trust. I have the opportunity to mobilize support for this project in the U.S. through different agencies, as well as individuals both in the form of money and equipment. I would very much appreciate if your department could consider placing the Hyderabad Eye Institute as one of the recipient organisations under the Indo-U.S. Agreement of 1968.

Your help in this regard will be greatly appreciated.

Enclosed is a copy of the Trust Deed and a Certificate from the Director of Medical Education, Andhra Pradesh, certifying this institution as an approved non-profit charitable institution. If you need any further information I would appreciate hearing from you.

With kind regards,

Sincerely yours,

Gullapalli N Rao, M.D.  
Associate Clinical Professor of Ophthalmology

GNR: cnp  
Encl.

*Gullapalli N Rao to Ministry of Health and Family Welfare, Government of India, 1985*



YASH PAL  
SECRETARY

Teleg. : SCHINACT/CH  
Telephone : 661439/660068  
Tele : 312096 DST IN

प्रधान सचिव

GOVERNMENT OF INDIA,  
भौतिक विज्ञानों की संस्था  
MINISTRY OF SCIENCE & TECHNOLOGY  
(भौतिक विज्ञानों की संस्था)  
(Department of Science & Technology)  
Technology Bhawan,  
New Mathayali Bhawan,  
New Delhi - 110016

23rd December, 1985.

D.O. No. DST/PS/1099/85

Dear Dr. Rao,

In continuation of my D.O. letter No. DST/PS/1006/85 dated 2nd December, 1985 please find herewith enclosed a copy of Government of India Notification No. 279/83-Cus. dated 30th September, 1983. Hospital equipments not manufactured in India, when imported by certain categories of hospitals, are wholly exempt from customs duty. Furthur, under Transfer of Residence Rules, 1978 highly qualified scientists, technologists, doctors and engineers when returning to India for permanent settlement after a stay abroad for a mainimum period of two years, are also allowered to import such equipments, instruments, apparatus and appliances duty free upto the value of Rs. 50,000/-, as are ordinarily required by him in his profession. I am sure, you will perhaps avail of the facility available.

With regards,

Your sincerely,

[YASH PAL]

Dr. Gullapalli N Rao  
44, Roby Drive,  
ROchester, NEW YORK 14618 (USA)

Encl. As above.

*Yash Pal, Ministry of Science and Technology to Gullapalli N Rao, 1985*

Date: 31-12-1985

To  
The Managing Director,  
A.P. State Non Resident Indian Investment Corporation Limited,  
5th Floor, Par---ana Bhavanam  
Basheerbagh, Hyderabad

Sir,

Sub: Establishment of a Eye Hospital Project through NRI Investments - Reg.

00000

We now request you to kindly assist us in securing suitable piece of land preferably within the city limits itself as this Hospital is likely to cater to a large number of people belonging to weaker sections of the society. Since we are contemplating to set up this hospital with 200 beds, our approximate requirement of land would be of the order of about 6 to 8 Acres. This hospital not only consists of investigation facilities and also Out-patient facilities. We are also contemplating to have a School for the Blind and also an Eye Research Laboratory. On account of this we have indicated our land requirement and we will appreciate if you can take expeditious action to identify and secure land for this project and we agree to pay a reasonable cost as fixed by the Govt. for this project.. While making the proposal to the Govt., you may kindly impress upon them the need of giving the land at a reasonable cost as it is likely to be run as a Non-profit institution and the Hospital would be run by a Trust, consisting of eminent doctors and other philanthropists. I would also like to mention here that about 50% of the patients will be treated totally free of cost.

00000

Thanking you,

Yours faithfully,

[DR. GULLAPALLI N. RAO]

Cornea Research Laboratory  
University of Rochester Medical Centre,  
Box 655  
601 Flawood Avenue,  
ROCHESTER, NEW YORK 14642

Encl: As above.

Gullapalli N Rao to Andhra Pradesh State Non-Resident Indian Investment Corp. Ltd, 1985

N. T. RAMA RAO  
CHIEF MINISTER



Dt. 6-9-1985

Dear Sri Nagendra Rao,

Thank you very much for your letter offering to start an Eye Clinic in Hyderabad with all modern facilities. You are welcome to see me during your next visit to Andhra Pradesh. Please keep in touch with my office on arrival.

With regards,

Yours sincerely,

A handwritten signature in black ink, appearing to read "N.T. Rama Rao".  
(N.T. RAMA RAO).

Sri G.N. Rao, MD,  
44, Roby Drive,  
Rochester, NY 14618,  
UNITED STATES OF AMERICA.

N T Rama Rao, Chief Minister of Andhra Pradesh to Gullapalli N Rao, 1985



As a filmmaker, my father found it  
absolutely right that our charitable trust  
should support a project dedicated to the  
enhancement of vision. RAMESH PRASAD



Kothaguda

## Borabanda Erragedda

Sanath  
Nagar

Hitech City

Machapur

Ameerpet

Jubilee Hills

Centre of Excellence built on land donated by L V Prasad, right next to their film studio in the upmarket locality of Baniara Hills.



Banjara  
Hills

Mankonda

Mehelpatnam

Golconda  
Fort

Ibrahim  
Baagh

Langar  
House

Bairagiouda

## Upparbally

Land allotted by the government of Andhra Pradesh in Kismatpur, home to the International Centre for Advancement of Eye Care (ICARE) and the Bausch and Lomb School of Optometry (BLSO)

## Hydershakote

Bandaquida

Kismatpura

Budweiser

Sivarampall

14

Himayat Sagar Rd

Rajendra  
Nagar

Premavathi  
Pat

Katedan  
Industrial Area





A unique beginning: the inauguration of LVPEI



107.630L

107.630L

107.630L

107.630L

107.630L

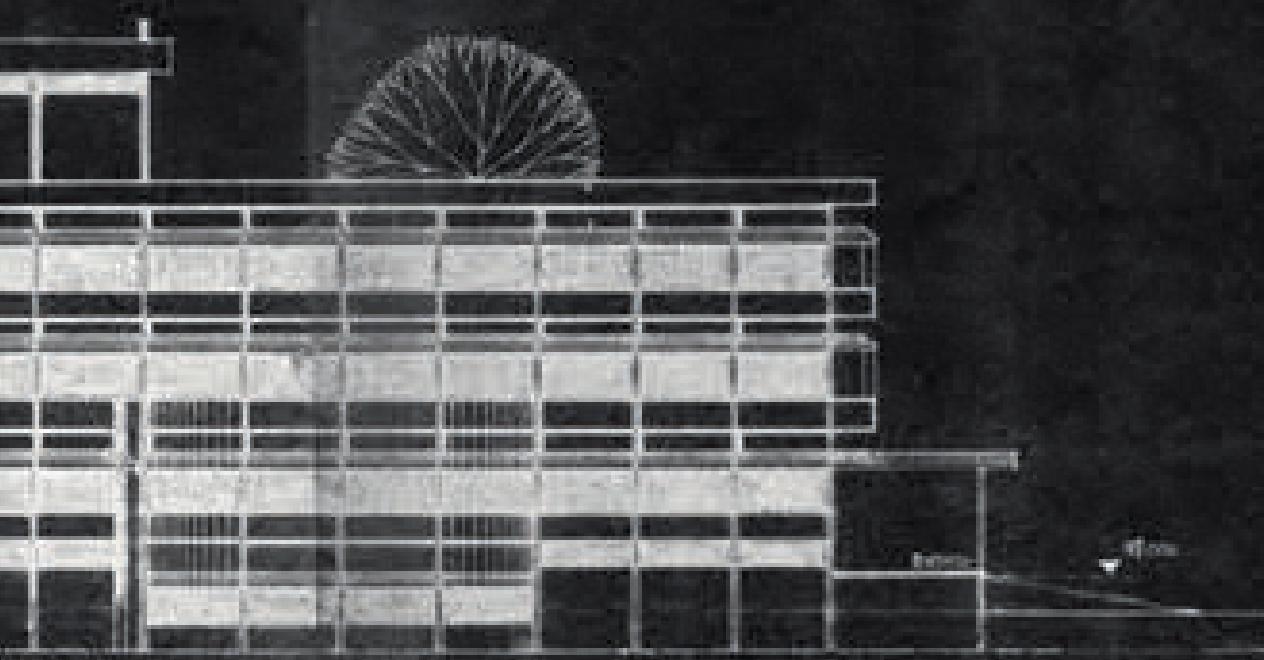
107.630L

# L V PRASAD EYE CENTRE, R.O.P.

SKETCH 15

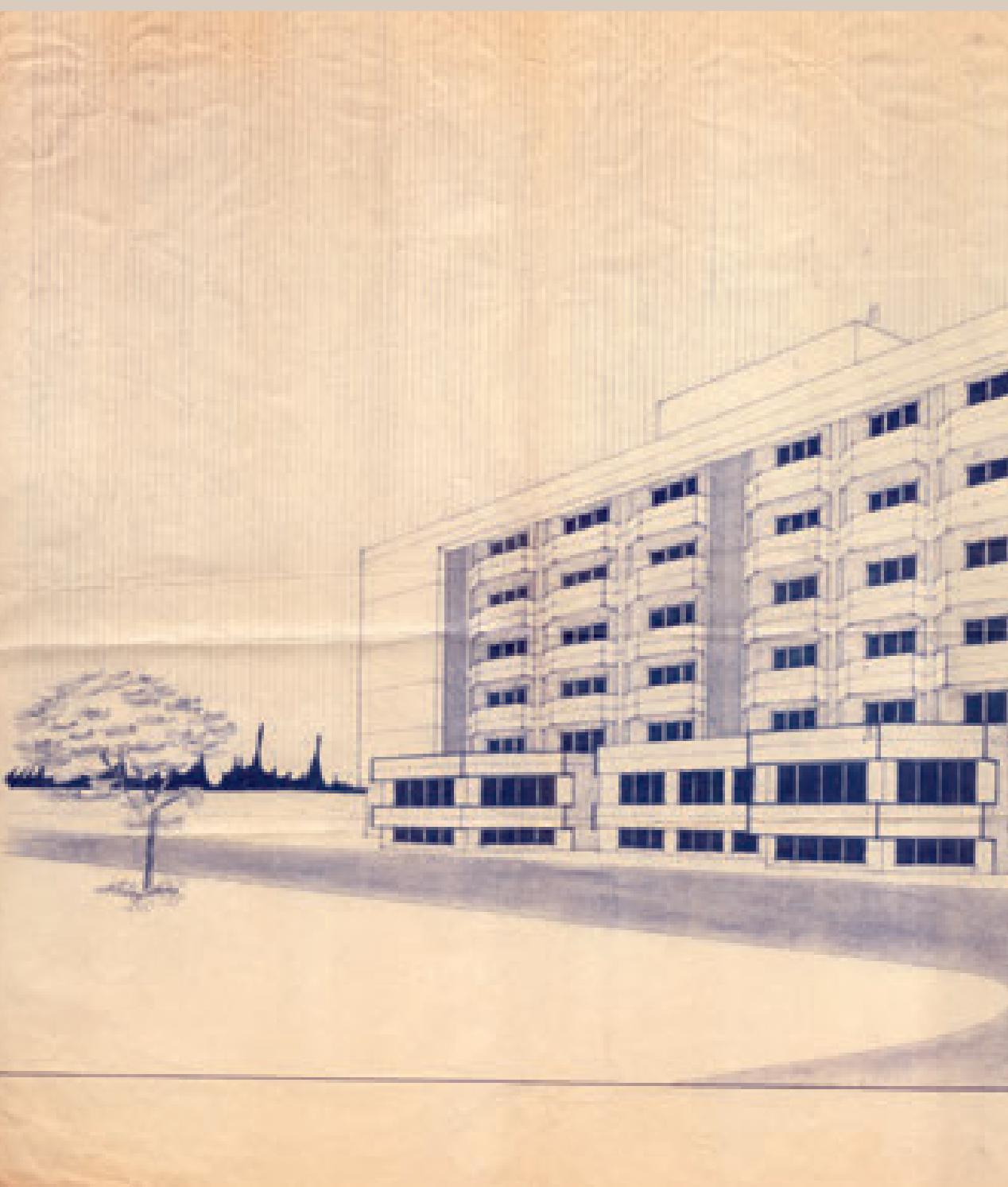
SOUTH SIDE ELEVATION ( 1st floor to street )

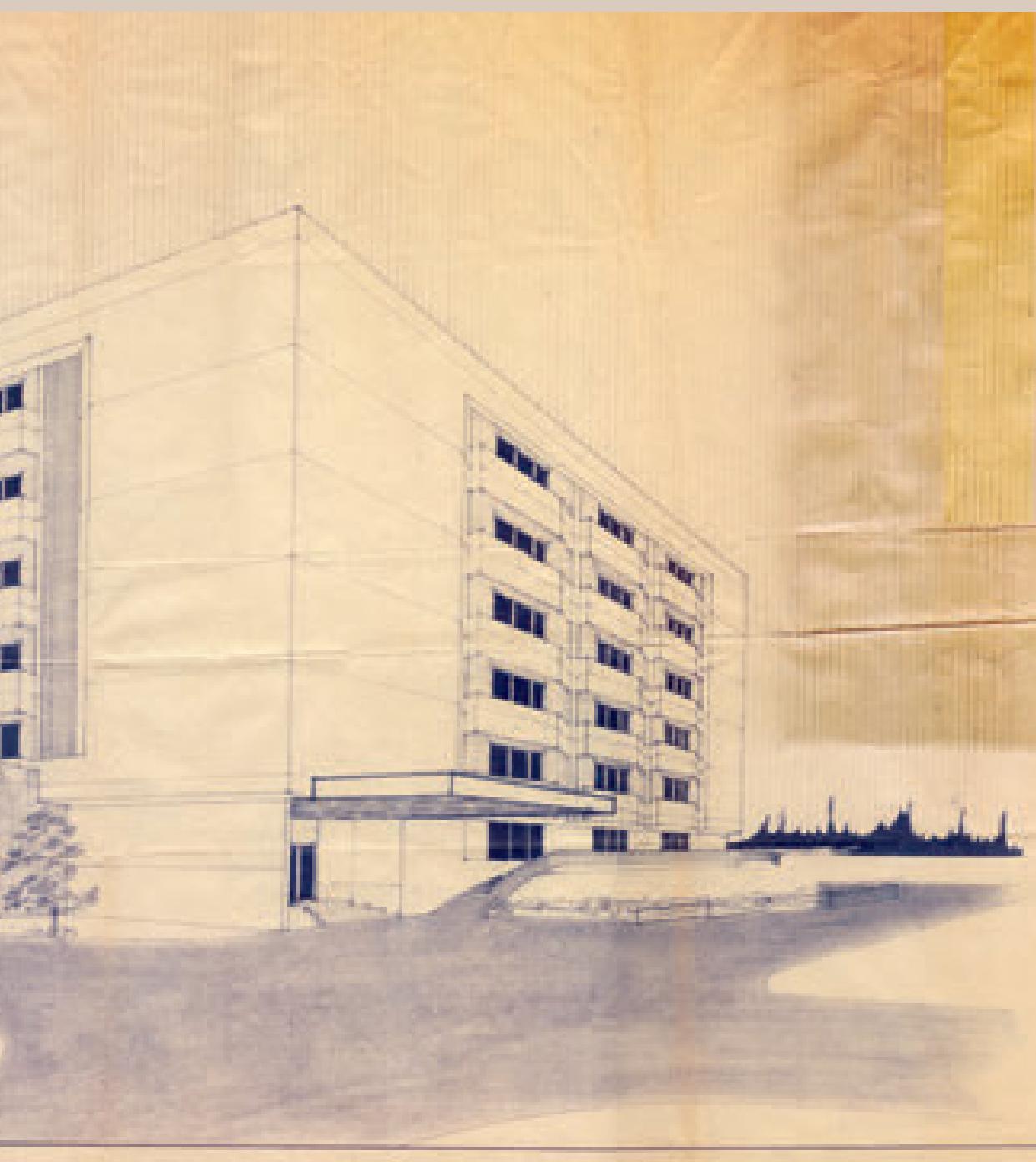
SCALE 1:1000



NO.2, BANJARA HILLS, HYDERABAD

Architect: Mr. S. Venkateswaran  
Managing Director: Mr. T. Venkateswaran  
Phone: 415/15, 415/15  
Address: 12, Banjara Hills, Hyderabad - 500 034







*from amidst the rubble  
arose hope*



*Construction of the Centre of Excellence, Banjara Hills, Hyderabad*

## EARLY DAYS

Dr. Rao was very sure of the type of Institute he wanted LVPEI to be, and Mrs. Rao and he were personally involved with the staff in creating every detail of that environment – ambience, aesthetics, patient flow, cleanliness, hygiene – all working to create a place which did not “feel or look like a hospital”. The result was an environment with abundant light and space. It had a spacious lobby, waiting lounges, well-equipped examination and diagnostic rooms for patients. There was no signage – after all, it was a hospital largely meant for those who had a problem with seeing! There was to be no furniture in any corridors and the treatment and work areas were completely isolated from the waiting areas to maintain a peaceful working atmosphere. The initial team worked tirelessly with a missionary zeal. The philosophy was simple: “the only VIP is the patient”. From the very first day, there was strong adherence to the mission – administering care to every person who walks into the Institute, irrespective of his or her ability to pay. As a consequence of this deeply held belief, 50% of all patients at LVPEI are treated free of cost.

LVPEI's formal systems were based on the comprehensive policy manual written by a Canadian hospital administrator, Stephen Jenner, who Dr. Rao greatly respected for his experience and depth of knowledge. Mr. Jenner spent 6 months in Hyderabad, understanding the needs of the people and the Institute, putting down guidelines for every area and every conceivable situation. General policies of equitable distribution of health care between paying and non-paying patients, clinical and patient care standards, nursing guidelines, basics for HR, team hierarchies, maintenance norms, bio-medical engineering issues, departmental policies for appointment of medical personnel, admission and patient scheduling procedures and more. Everything a hospital needed to run itself. The manual was ready by the time LVPEI started. Over the years the policy manual became a baseline document, a ready reckoner. Some changes are made from time to time to keep up with evolving needs, but the essence of the operations stem from this tome, that runs into several hundred pages.

However, the cornerstone of LVPEI has undoubtedly been its people. From the first employee, hired in 1986 (Lalitha Raghuram, Dr. Rao's Executive Assistant, who went on to become the Executive Director of Eye Bank Association of India) to each and every person on the rolls now, there is a common thread of passionate conviction and belief in the values and mission of the Institute. The first few doctors, besides Dr. Satish Gupta, were his wife, Dr. Madhu Gupta, Dr. G Chandra Sekhar, Dr. Shobha Boghani and Dr. Sriram Sonty, a glaucoma specialist, who had also returned from



the US. Other friends and colleagues visited to transfer skills and help in setting up proper protocols for all aspects of high quality patient care. Within a year, the Institute had established a reputation around the country as an organisation of high quality. Dr. Rao had collected some of the best ophthalmologists

available and the Institute was beginning to do wonderful things. The Trustees, Sri Kilaru Prasad, Sri Kolluri Rama Rao, Professor V Ramalingaswami and Dr. Narla Tata Rao, were keenly interested in the progress of the Institute, too, right from the outset.

In the early days, from Dr. Rao downwards, the staff and doctors worked without pause towards the fulfillment of their shared goal, often at the cost of their personal lives. "My children tease me that my first love is LVPEI and that they come a distant second," laughs Vijaya Ramam, who retired as Senior Consultant. She admits freely that even after retirement she is unable to tear herself away from the Institute. "My heart and soul are there. I love every brick." Other long-term employees who have moved on to high points in their careers look back with a similar sense of ownership on this unique birth they assisted in.

The economics are also unique: Over the years, the Institute has been able to maintain financial self-sufficiency for its operations from the revenues generated by paying patients. The funds from donations and grants were used only for capital expenditure and growth. Financial sustainability was the aim: within 6 months it was achieved. Everything that was done, every typewriter or piece of furniture purchased, every employee hired, was according to need. In the meantime every person multi-tasked. Housekeeping, hygiene, horticulture, medical supplies...it was all monitored by the administrative staff or doctors. Every clinical necessity, down to the gowns the operating staff wore, was decided by the existing staff. Everyone did everything, starting all together, right from scratch. Support came from all over the world, from individuals, international organisations and industry, all major international NGOs in eye care and international ophthalmic corporations: they all contributed to the evolution of LVPEI.

A single man's dream had become a collective vision.



## L. W. PHILLIPS' HOME INSTITUTE

#### **Central Policies**

Page 99

Date : January 1987

CHART #1

PATIENT CALLS...  
•  
•  
•

EMERGENCY -- YES -- "COME IN TODAY"  
•  
•  
• -- NO --  
•  
•

SCHEDULE IN -- YES --  
PRIORITY SPOT REERRAL FROM M.D. OR O.D.  
?  
•  
•  
• -- NO --  
•  
•

SCHEDULE IN -- YES --  
PRIORITY SPOT CATARACT OR OTHER  
SURGICAL PROCEDURE;  
I.E., RE OR EYELINER  
?  
•  
•  
• -- NO --  
•  
•

SCHEDULE IN -- YES --  
PRIORITY SPOT CONTACT LENS  
?  
•  
•  
• -- NO --  
•  
•

SCHEDULE IN -- YES --  
PRIORITY SPOT STRABISMUS  
?  
•  
•  
• -- NO --  
•  
•

POST-OP C.L. CHECK -- YES -- SHORT EXAM --  
OR GLAUCOMA NORMAL TIME  
?  
•  
•  
• -- NO --  
•  
•

NEW PATIENT:  
REFRACTION/CONTACT LENS FITTING  
LONG EXAM = NORMAL TIME

"But anticipate a wait of -----."

# L V PRASAD E HYDER

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\*CORNEAL TRANSPLANTS \*Cataract Surgery  
FOR REFRACTIVE ERRORS \*GLAUCOMA  
PLASTIC SURGERY

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SURGEONS

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**PATIENT CARE**

**L V PRASAD EYE HOSPITAL**  
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---

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HYDERABAD  
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CONTACT LENSES \* SURGERY  
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**ప్రాథమిక**

**ప్రాథమిక ప్రాథమిక**

**1 and 1987 నుండి అందులు**

**మొబిల్ ఫోన్ (Appointment) నెంబర్ 236014 దిగువనిల్లు**

**ప్రాథమిక 15 రూప్యాలని**

**ఎస్. భారత నిమ్మిట్**

**Block 2, విశాఖపట్నం, జాతీయ రోడ్ 500 034**

**మొబిల్ ఫోన్ నెంబర్ 236014 దిగువనిల్లు**

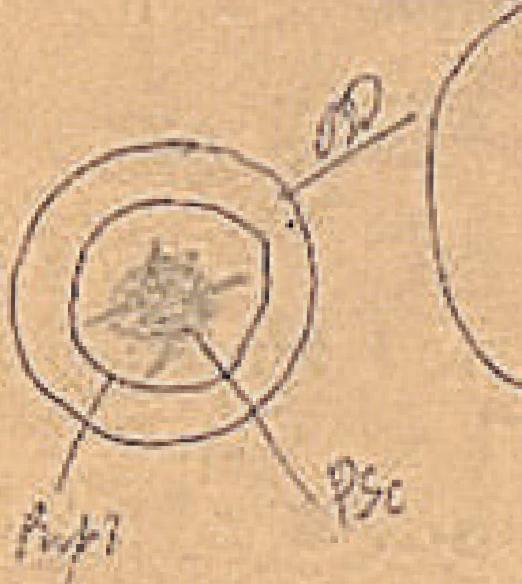




*the pioneers  
who began it all  
their spirit propelled us on,  
their struggles ignited a flame*



DIAGRAM



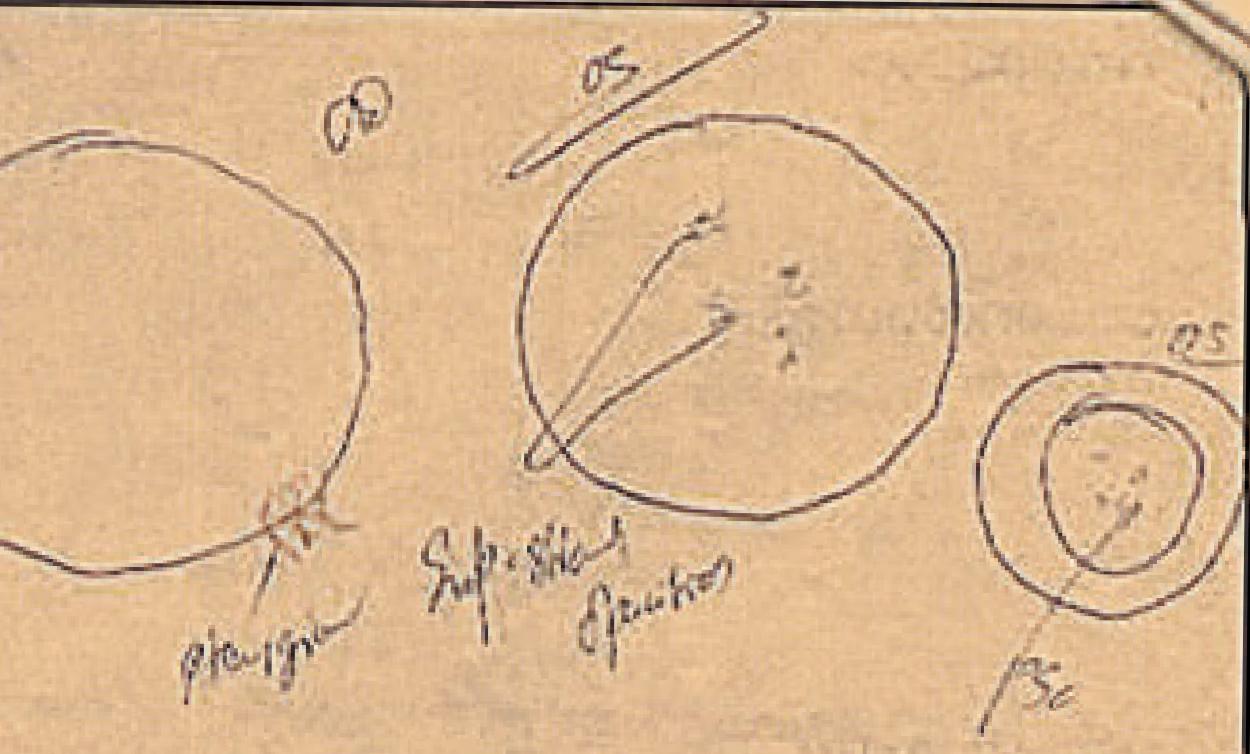
IMPRESSIONS



TREATMENT

- (1) Roll
- (2) Siz

INVESTIGATIONS



Cataract obs OD 70%

Phenylalanine OD

Brunst Scan OK

In left 3 mos

bottom explained to patient

# An Institute



After Dr. Sudipalli N. Ravupudi's  
prospective job in the United States or set  
up the L.V. Prasad Eye Institute  
in Hyderabad, Andhra Pradesh, India.  
The institute was one of the first  
eye banks in the world for corneal transplants.  
Far right: Dr. Rao (left) performs  
a corneal transplant on a patient.



24 [www.espn.com/india](http://www.espn.com/india)

Article on LVPEI in SPAN magazine, February 1990

# With a Vision

Text by KRISHNA GUERRA  
Photographs by ANUPAM PAUTCHA



Although their identities are hidden behind the blue robe, the mask, the headgear, there is a palpable undercurrent of tension as the surgeon and his team ready themselves to operate on a patient. Everything is in place. Their eyes meet, as if in prayer.

The tension mounts, as the surgeon, chief actor in this wordless, silent drama, positions himself on a stool, intently peering at the patient's eye through a high-powered microscope. In a moment, a nurse places in his outstretched

The credit for the institute's fame belongs to its team of doctors and paramedics and other administrative staff, who schedule themselves brutally, from the time they reach the hospital early in the morning to late in the evening when they return home. SPAN, FEBRUARY 1990





*LVPEI's Centre of Excellence as it stands today.*

# SIGHTLINES

## THE BEGINNING



Mrs. & Dr. Rao's decision to return to India in 1986, and committing first major donation



Indo American Eye Care Society formed to raise funds for the envisioned institute

1981

'82

'83

'84

HEI and  
HERF  
founded



Charitable  
trust and  
society  
formed in  
Hyderabad

Govt of AP  
allocates land  
in Kismatpur

HEI decision  
to name the  
institute after  
L V Prasad



Ground breaking  
on October 17

Recruitment  
of people  
commences

First employee –  
Lalitha Raghuram,  
Executive Secretary  
to Dr. Rao

Dr. Satish  
Gupta,  
first doctor  
brought on  
board

LVPEI building  
complete –  
20,000 sq ft  
ready for use

First  
Operating  
Room

First paying  
and non-paying  
patients seen

'85

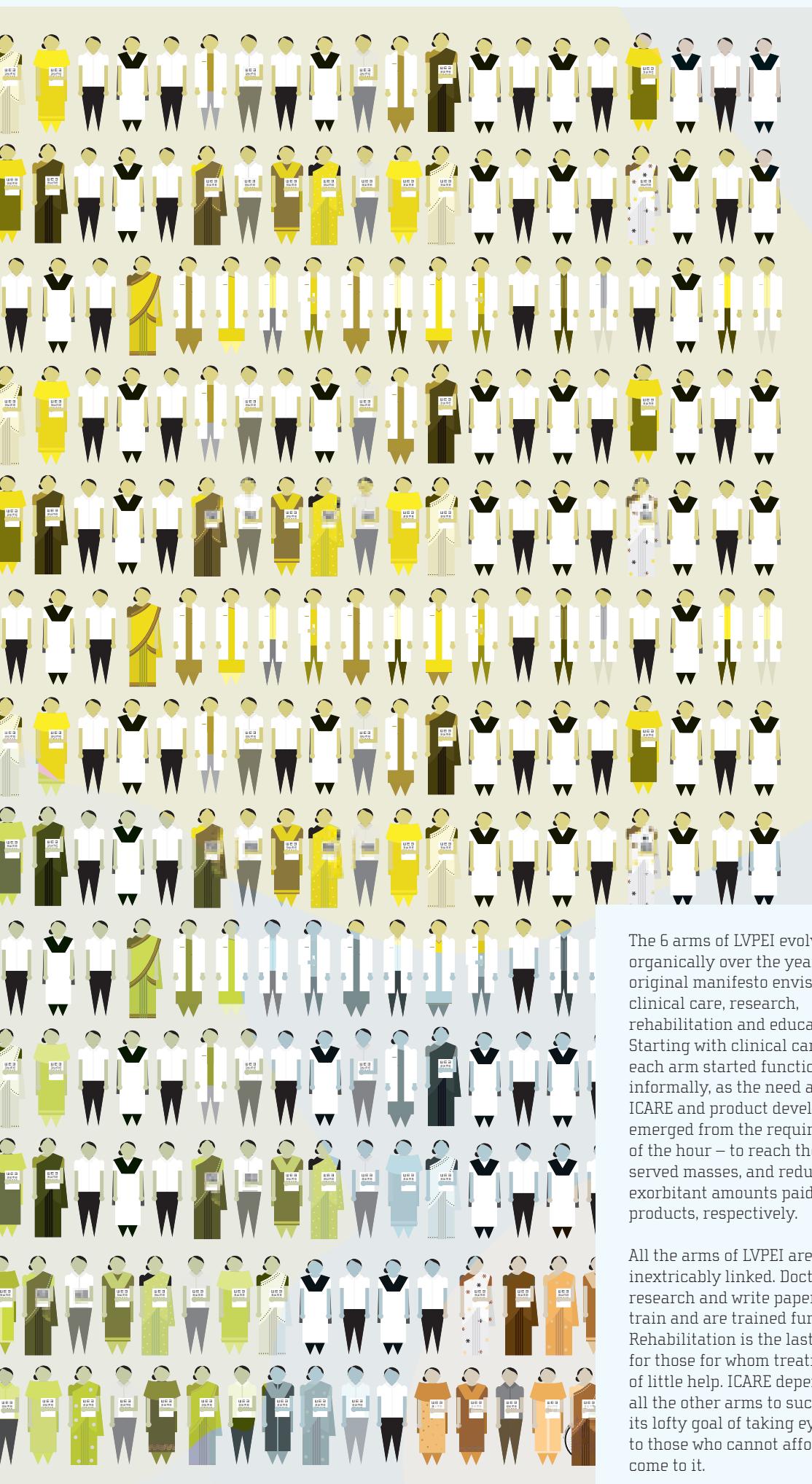
'86

'87

'88

ENVISIONING THE SIX ARMS  
IN THE BEGINNING





The 6 arms of LVPEI evolved organically over the years. The original manifesto envisaged clinical care, research, rehabilitation and education. Starting with clinical care, each arm started functioning informally, as the need arose. ICARE and product development emerged from the requirement of the hour – to reach the under served masses, and reduce the exorbitant amounts paid for products, respectively.

All the arms of LVPEI are inextricably linked. Doctors do research and write papers. They train and are trained further. Rehabilitation is the last hope for those for whom treatment is of little help. ICARE depends on all the other arms to succeed in its lofty goal of taking eye care to those who cannot afford it, or come to it.

# SPOTLIGHT

## THE BEGINNING

**6 ARMS:** The equitable, efficient and excellent eye care flows to the community through the six arms of LVPEI: the Hospital for clinical care, the Education Centre, the Eye Research Centre, Vision Rehabilitation Centres, Community Eye Care and the Product Development Centre.

**All India Ophthalmological Society:** The world's second largest and the country's largest professional ophthalmological body. Started in 1930, it has a membership of 14,000 eye care professionals. The society seeks to cultivate and promote the study and practice of ophthalmic sciences, research and man-power development for the good of the community and science at large. Conferences, workshops and seminars are organised by this body to facilitate exchange of knowledge in the field.

**ANRICH:** Andhra Pradesh State Non-Resident Indian Investment Corporation Limited, an entity formed to encourage Non Resident Indians of Telugu origin

to invest in the state of Andhra Pradesh. This was the body through which the government allotted the land at Kismatpur to LVPEI in 1994.



**Art Gallery:** Following the vision of Dr. Rao, that he did not want the Institute to look like a typical hospital, but instead be a warm and welcoming place, there is an art gallery and sculpture garden with a collection of artworks to soothe the mind and inspire healing.



**Bow Tie:** Often polka dotted, always spotted on the collar of Dr. Gullapalli Nag Rao.

**Cornea Research Laboratory:** A part of the University of Rochester School of

Medicine, this is where Dr. Rao worked during his stint as an academic ophthalmologist.

### Early Logos of LVPEI:



**Ek Duje ke Liye:** Blockbuster produced by L V Prasad. The profits of the film were donated to LVPEI.

**Equity:** Equal access and opportunity for eye care to all.

**Excellence:** Ensuring the delivery of world-class clinical care and rehabilitation to patients.

**Gardens of LVPEI:** Right from the beginning, beautiful gardens have

surrounded the campus at LVPEI. The promise is "wherever you look out from the ground floor level, you will see green".



The gardens have won several awards in the Gardens Maintained by Institutions category in Hyderabad.

**Guntur Medical College:** A 50 year old institution that offers both under- and post graduate courses. It also offers training for paramedical staff like Radiographers, Lab Technicians, Lab Attendants, Pharmacists, Nurses, and Sanitary Inspectors. Dr. Rao's alma mater.

#### **HEI and HERF:**

LV Prasad Eye Institute is managed by two not-for-profit trusts: the Hyderabad Eye Institute (HEI) and the Hyderabad Eye Research Foundation (HERF). HEI is registered as a trust overseeing the activities of the Hospital, whereas Education & Research programs

are managed by HERF, registered under the Societies Act. Effectively, the overall activities of LVPEI are governed by both HEI & HERF.

**Indo American Eye Care Society:** A not-for-profit organisation founded in 1986 in Rochester, USA to raise funds for LVPEI. The Founding Governing Board of Indo American Eye Care Society included Prof. Brijen Gupta, Dr. H Janardhan, Dr. Y M Jay, Prof. V Ramalingaswami and Dr. Gullapalli N Rao.

**KAR Campus:** The Kallam Anji Reddy Campus in Banjara Hills, Hyderabad where the Centre of Excellence is situated. The peak of the LVPEI Eye Health Pyramid.

**LVPEI's Vision:** To create excellent and equitable eye care systems that reach all those in need.

**LVPEI's Mission:** The mission of LV Prasad Eye Institute is to be a Centre of Excellence in eye care services, basic and clinical research into eye diseases and vision threatening conditions, training, product development, and

rehabilitation for those with incurable vision impairment, with a focus on extending equitable and efficient eye care to underserved populations in the developing world.

**WHO Collaborating Centre:** Research institutes or parts of universities or academies, which are designated by the Director-General to carry out activities in support of WHO's programs. Currently there are over 800 WHO collaborating centres in over 80 Member States working on areas such as nursing, occupational health, communicable diseases, nutrition, mental health, chronic diseases and health technologies. LVPEI is one such WHO Collaborating Centre.

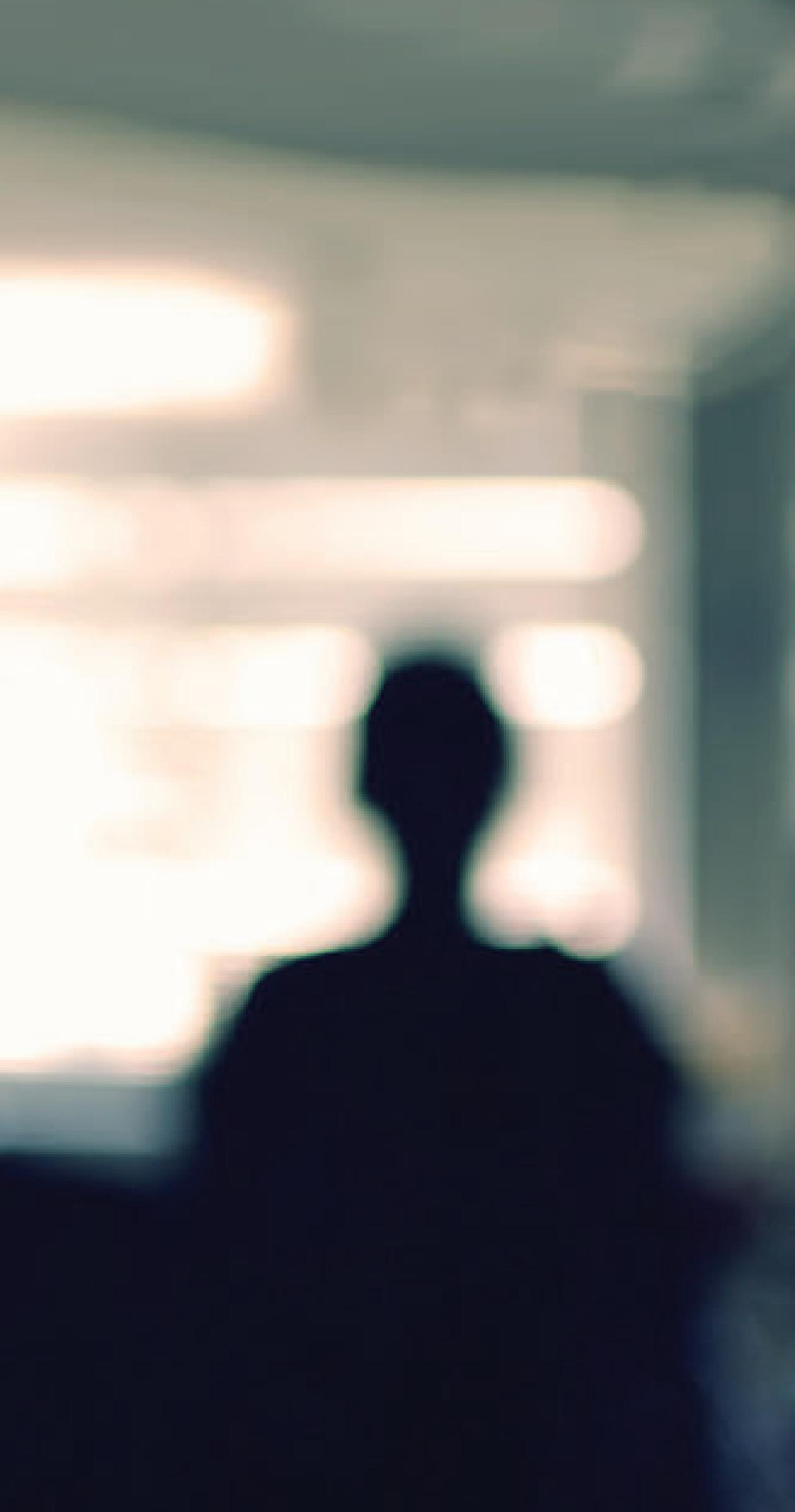
Our constant  
challenge, one we  
rise up to,

is giving every  
patient an overall  
experience that is  
the best.

Dr. G Chandra Sekhar



*slices of light  
illuminate our world...  
then shade grows,  
and seeing is askew*



*light and shadow  
frolic across carved stone  
like my eye flickers,  
its insides aglow*



2.

# HEALING HANDS

CLINICAL CARE

**ENABLING SIGHT . 98**

**INSIGHTS INTO CARE . 106**

Different Strokes . 110 | A Day at the OPD . 116

**BANKING VISION . 126**

**CHARTING IMPAIRMENT . 130**

**CATCH THEM YOUNG . 134**

Time is Vision: The ROP Program . 138

*Sightlines . 148*

*Getting a Perspective . 154*

*Spotlight . 156*

The desire to heal is an inborn one. It refracts light into lives, illuminating the darkness. It climbs over obstacles, races against time and overtakes disease in order to reach the finish line of good health. If buffeted by high standards and technology, enhanced by innovation and skill, it can achieve the near impossible. Especially when coupled with a passionate vision: "so that all may see".

At LVPEI, we believe in the power of medicine and rehabilitation, and put our trust firmly in learning, invention and research. And excellence in each of these areas. And most of all, we believe this excellent care needs to reach everyone, regardless of their geography, gender, or ability to pay, in hygienic, pleasant environs, and in as efficient a way as is possible. It is for these reasons that our ophthalmic clinical care has come to be recognised as one of the finest in the world.



Since LVPEI opened its doors in 1987, hundreds of thousands of patients of all backgrounds and ages have benefitted from our patient-focussed, high quality, comprehensive eye care: restoration of vision as well as vision rehabilitation of those with incurable eye diseases. World-class multispeciality services flow to patients up and down the Pyramid of Care. It travels through the primary, secondary, tertiary levels, right up to the Centre of Excellence, carrying forward a compassionate and emotionally driven work culture. Top-level healthcare is provided to every patient equitably, irrespective of their ability to pay or the complexity of the care involved. This is equally applicable to surgery and medicines, to food and accommodation. Specially designed programs range from care for children including newborns and infants at the comprehensive Children's Eye Care Centre (a signature program for us) to the age-related diseases of the elderly, as well as diabetic patients. The multiplicity of specialty services covering the entire range of blinding eye diseases make our clinical services meaningful and holistic. Meticulous attention to detail and an obsession with hygiene distinguish our standard of care.

Along with EXCELLENCE, EFFICIENCY AND EQUITY, LVPEI has another ingredient in the mix, one that makes all the difference. This is the quality of EMPATHY; that ties in all the other attributes; that makes patients from all strata of society feel well taken care of, their confidence further buoyed by the hospital's standards of treatment.

98 Understanding a patient's fear of losing their sight, their trepidation about surgery...

This is all part of our daily endeavour, because we know that healing is about more than just clinical care.

This quality of empathy filters down to every department – doctors, support and administrative staff – all imbibe this principle in their everyday tasks.

Empathy is in our culture. It props up our clinical care.

**"I don't think my job stops at being a surgeon. I often advise my patients on their career paths or their marriage prospects... Listening to one's patients is very, very important."**

Dr. Virender Sangwan



...It would not look or feel anything like a hospital.



LVPEI Bhubaneswar Campus

101





LVPEI Bhubaneswar Campus

There shall be no distinction made in the standards of clinical care given to paying patients and that given to non-paying patients; nor shall any distinction be made in the courteous attitude to the patients that is mandatory for all staff.

LVPEI Policy Manual, 1987



*When patients come back for a follow-up consultation without an attendant, I know that they are not only better after the treatment but also have more confidence in themselves and LVPEI!*

Ruksana  
Associate Administrative Head, Patient Care



Patient care begins at the front office in LVPEI. Besides making the first point of contact a warm and friendly one, the patient is immediately referred to the right doctor. The objective is to make the OPD experience as smooth as possible.



The eye is an instrument of hope, of the future. Its workings are intricate and its repair complex. At LVPEI, we have devoted our deepest efforts into correcting any defects in this unique, delicate instrument's mechanisms. Our task runs smooth because of the dedicated and qualified expertise of LVPEI's medical and administrative personnel. Advanced infrastructure and support mechanisms add an edge to the mix. Sophisticated equipment, laboratories and research inputs have, over the years, made our offerings wide ranging and novel, able to handle all ophthalmic subspecialties – from routine cataracts to retina, glaucoma and oculoplasty services – with equal competence. A range of services through specialised clinics and fully equipped operating rooms complete the loop of medical care.

Clinical services at LVPEI include:

- Cornea and anterior segment
- LASIK and refractive laser surgery
- Cataract surgeries
- Retina services
- Uveitis treatment
- Glaucoma procedures
- Contact lens
- Strabismus (squint)
- Neuro-ophthalmology
- Ocular Oncology
- Ophthalmic plastic surgery
- Aesthetic facial plastic surgery
- Cosmetic dermatology
- and more.

Our clinical services started with cornea, cataract, glaucoma, plastics, retina and pediatric care. Subsequent specialties were added on only when competent team leaders were identified or young talent was recruited, and the Institute had invested in their training. For instance, as a consequence of this philosophy, our comprehensive Ocular Oncology Centre was established in 2000. We have diagnosed and comprehensively managed over 5000 patients with eye cancers and related disorders at this centre, 25% of whom are children. Ophthalmic plastic surgery and ocular prosthesis are offered to patients to avoid the stigma of deformity resulting from loss of an eye. Besides these, we have a highly efficient aesthetic facial plastic surgery and cosmetic dermatology department which in India is very unique, and a necessary complement to our skills and services as eye surgeons. **"The fact that our facial aesthetic unit emerges out of the ophthalmology specialty makes it unique in two ways: The procedures we perform have a very minute detailing towards the scar,**

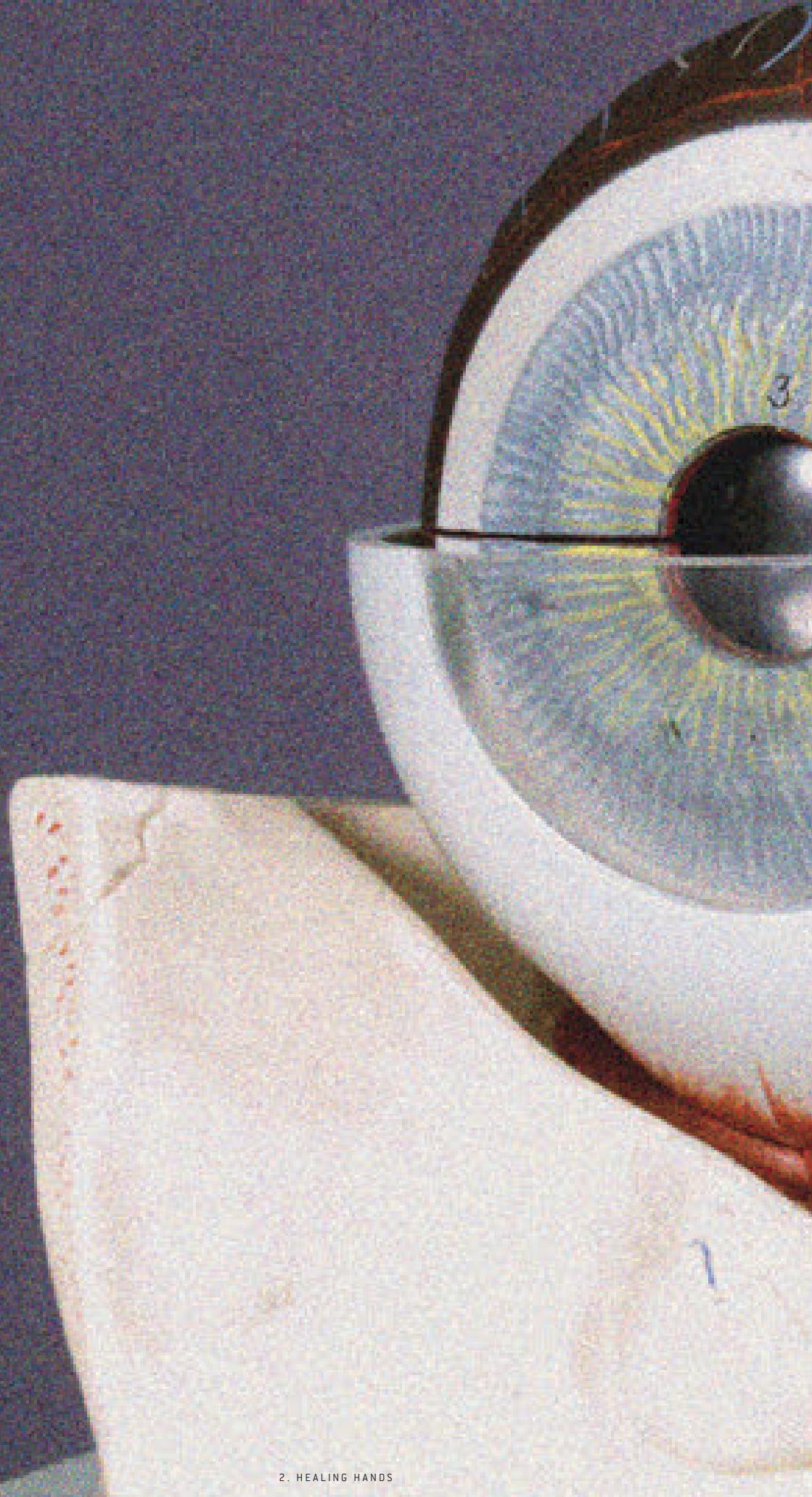
its size and visibility. Also, because it is our area of expertise, we can perform several surgeries around the eye through incisions that are hidden behind the eyelid, so scarring is reduced", says Dr. Milind Naik.

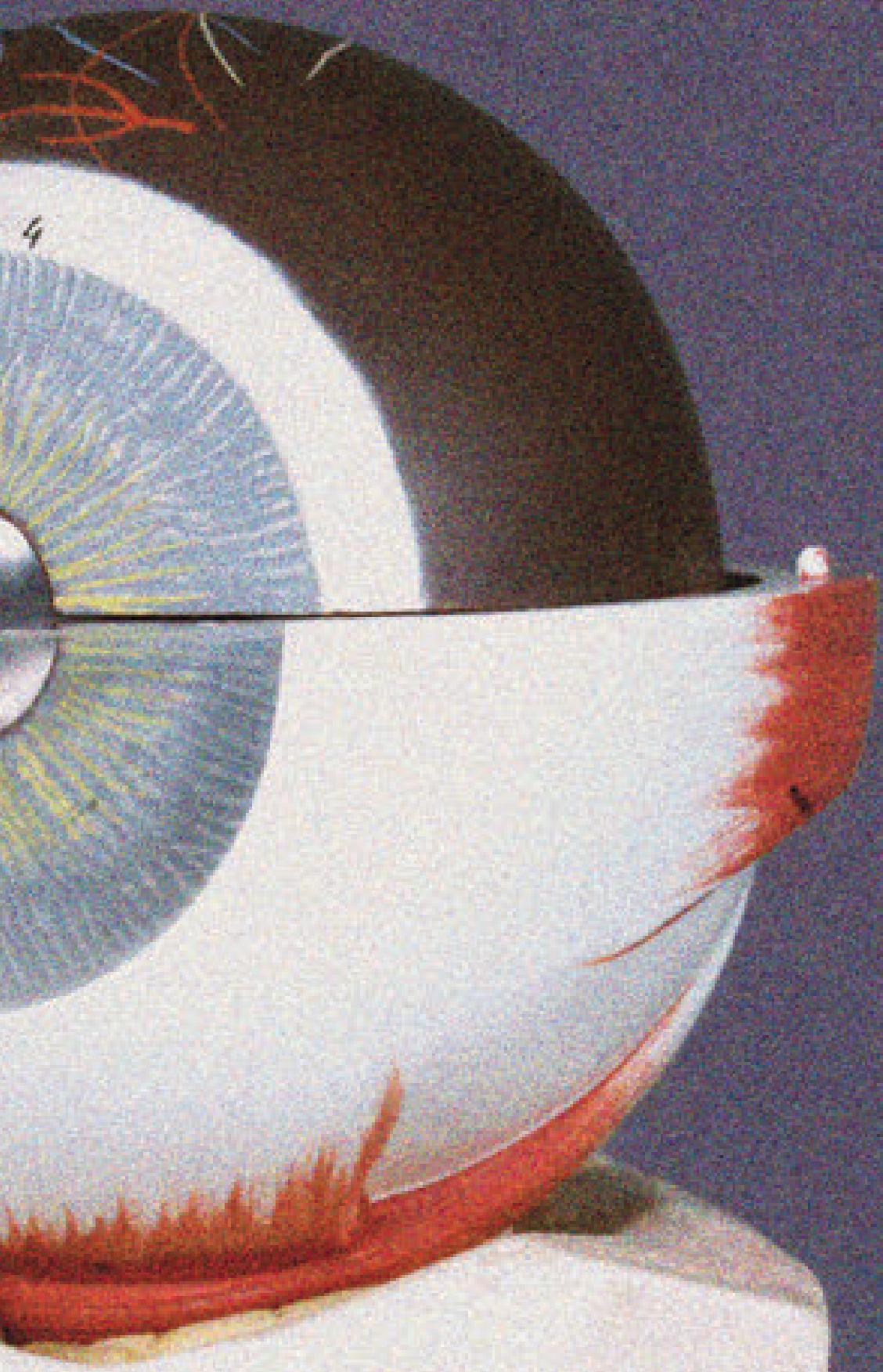
Starting with just one eye hospital in Hyderabad, we soon felt the need to expand. Two new Tertiary Centres were started in 2006, the Bhubaneswar Campus and the GMR Varalakshmi Campus in Visakhapatnam. The Kode Venkatadri Chowdary (KVC) Campus came into being in 2011 in Vijayawada. There are several City Centres on the anvil, with four of them already in place in Hyderabad, Visakhapatnam and Vijayawada, allowing further access to our high quality services. Besides being a locus of excellent eye care, they also have the distinction of being eco-friendly – they are paperless, running on an in-house developed electronic medical record system that retrieves information at the click of a mouse.

In tune with our pioneering spirit, we have a symbiotic relationship with our research wing, the Brien Holden Eye Research Centre, so clinical services run concurrent with cutting edge research. The best example of something going from laboratory to clinic successfully is limbal stem cell transplantation. We have done the largest series of this therapy for ocular surface disorders, almost 900 of them. LVPEI was one of the first institutes in the world to use this novel technique in 2001, bringing hope to thousands of patients, irrespective of their ability to pay. Integrated care for retinoblastoma has become a special feature of our Institute, and we were the first in the region to offer in-house brachytherapy for ocular cancers, much needed at the time, as well as diagnoses in oncology using new technology. We have also evolved unconventional approaches for treating glaucoma.

Because of our large volumes of patients, our experience is layered and extensive. We have the distinction of performing the largest numbers of corneal transplants using corneas harvested by LVPEI's eye bank (more than 1000 corneal transplants in a single calendar year, 2003) by a single institute in the world for the past several years.

As high as our standards are, they are not compromised as we go farther down the Pyramid of Care. The same quality of treatment is offered to non-paying patients who make up about half of our total patients. They are given the necessary care irrespective of the complexity and duration of the treatment they require.





The eye is like a camera with a lens in front and a film (retina) at the back. The retina is located approximately two centimeters behind the pupil. It is shaped like a small cup. The retina converts the ocular image into a signal that is sent to the brain. The central part of the retina, called the macula, is used for straight-ahead vision and what is in the direct line of sight.

# DIFFERENT STROKES

How the world looks to those with visual impairment



*Glaucoma*



*Cataract*



*Retinitis Pigmentosa*



*Age Related Macular Degeneration*



*Diabetic Retinopathy*



*Uveitis*



In the last 25 years we have touched over 15 million people, with more than 50% services provided free of cost, regardless of complexity.





At the primary level, services like screening are completely free. If some villagers need glasses, they pay a nominal cost. The small profit made from this is used to pay the technicians and for running costs. In a smaller village the cost recovery is generally 30%, while in a bigger village with higher population, it could be around 150%: so at this level they cross-subsidise each other. At the Secondary Care Centre, 65-70% of the surgeries are done free. The remaining 30-35% surgeries are also subsidised after cost recovery. Then comes the tertiary level, where 50% of the surgeries are free; the rest contribute to recovering cost.

Money is not an issue for me. I could have chosen to go abroad to the USA for treatment. But if I can get the treatment and facilities that match the best in the world, I would certainly prefer to avail that at home in India. Charging a premium to the rich, to those who can afford the 'exclusive' packages, is as necessary as extending free services to the poor.

Maninder Singh Pal, Sight Saver

*Maninder Singh Pal underwent surgery to repair an eyeball that was badly injured in a highway car accident. A few years ago such eye injuries were considered irreparable and the eyeball would have been removed, as it was torn almost in two parts that needed to be stitched together. But now, advanced microscopic surgery which Maninder underwent at LVPEI, lends hope.*



Exclusive inpatient suite with personalised nursing care on level 6, LVPEI Hyderabad

# A DAY AT THE OPD





Waiting room for non-paying patients at LVPEI, Visakhapatnam.



The Outpatient Services at LVPEI get a staggering variety of cases in a single day. From businessmen to street children, mothers of babies to young professionals, we see patients from all walks of life, of all ages. And we treat each one of them with the same high level of care and caring. Every day we see cases of so many types: from simple eye check ups, to double vision caused by an accident, or squint evaluations. Syed Mehdi Hussain comes from Pakistan after losing his sight in a suicide bombing attack. He is examined by retina and cornea specialists and a diagnosis is made. There is a case of Leber's Congenital Amaurosis and another in a young woman of shaking of the eyes or congenital nystagmus. Yet another patient, Norman, contracted the parasite (acanthamoeba keratitis) in UAE and found no treatment for it there. He came to LVPEI, where he has had a chance to heal. We see visual impairment in children caused by Vitamin A deficiency or childhood rubella. A patient arrives with a year's history of frequent episodes of redness, itching and swelling of the upper eyelid of the right eye. On his second analysis, a diagnosis of ulcerative conjunctivitis,



presumably of tuberculosis origin, is made. Jai Singh, an Olympic hopeful, came to us with retinal detachment caused by a blow to his eye. He has now resumed his training. A young woman brings her child and we examine him and find he has cerebral visual impairment, which means we cannot improve his vision. But we refer him to the rehabilitation centre on the 3rd floor, which will give him the chance to learn skills, so that perhaps one day he can be integrated into mainstream education. Patients come for follow-ups after operations like congenital cataract surgery. Many come, like Amardeep, because they have lost all hope elsewhere. He says, "All the doctors told us that no surgery could be done at such an early age and that my son would lose his vision. Then I found LVPEI online. My experience with L V Prasad Eye Institute was above and beyond my expectations. Such a major surgery happened so smoothly and, in no time, they gave me a safe and healthy future for my child."





*From the time I was 10, when I first developed a dry eye with redness and blurry vision, I was gradually going blind. By the time I reached LVPEI in 1999, I had already seen countless ophthalmologists and even homoeopathy and ayurveda doctors. I could not see beyond a distance of one meter – even faces were unrecognisable. The doctors at LVPEI recommended a stem cell surgery, my parents being the donors.*

*It is hard to imagine that I, once semi-blind, was able to graduate from the prestigious Indian Institute of Management, Calcutta, and am a proud father of two children today. And, yes, I can see clearly now!*

Abhishek, 38

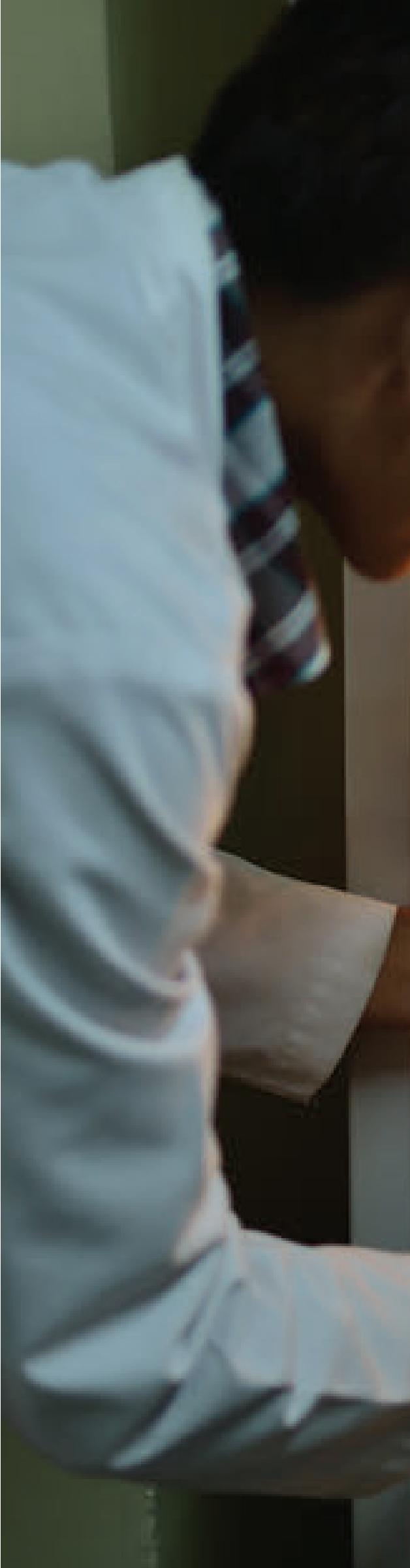
<u>Pieces</u>	<u>Poses</u>	<u>1/2 lbs</u>
<u>9</u>	<u>11</u>	<u>11</u>
<u>10</u>	<u>12</u>	<u>12</u>
<u>11</u>	<u>13</u>	<u>13</u>
<u>12</u>	<u>14</u>	<u>14</u>
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M.R. No:	
FOR - WHOM	
DATE	

LVPEI is moving towards a totally paper-free database by digitising patient records, some of which are long ones: we have patients who started their relationship with us the day they were born.

The only known cure  
for corneal blindness is  
corneal transplantation,  
using healthy corneas  
donated by individuals  
upon their death.

Dr. USHA GOPINATHAN





	JAN	DEC
NO.OF CASES THIS MONTH	54	85
Voluntary	20	36
Motivated	34	49
TODAY'S DATE	23.01.12	
TISSUES / DAYS	108 /23	
TOTAL TISSUES CURRENT YEAR (TILL TODAY)	108	
1st ON CALL	Dr. KUMAR RAVI	
2nd ON CALL	Dr. KOPAL MITHAL	
TISSUES RECEIVED FROM OTHER EYE BANKS	105	
NO.OF CASES LAST MONTH	85	

## BANKING VISION

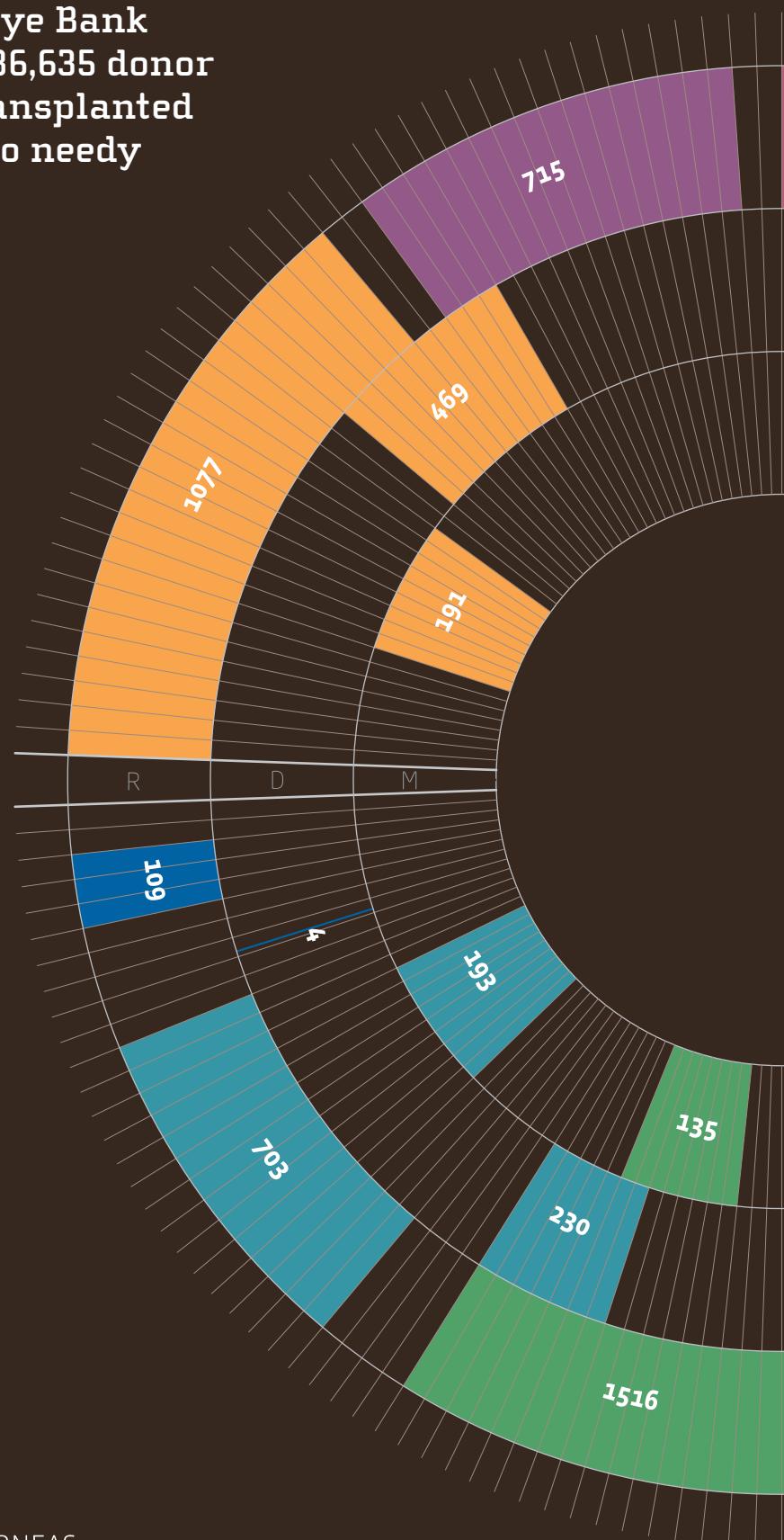
Healthy corneas are scarce and an active eye bank that harvests and distributes this precious resource offers a cure to blindness – a lifeline – to hundreds of people. Our corneal transplant program is flying high because of the Ramayamma International Eye Bank (RIEB), which LVPEI set up at the Centre of Excellence in 1989 with support from Gunnam Subba Rao Trust of Mrs. Ramayamma's family, technical support from the International Federation of Eye and Tissue Banks, USA (IFETB), and training support from Eyesight International, Canada, (ESI).

The work of the RIEB includes sourcing, evaluating and preserving donor corneas, and subsequently distributing them to scheduled patients within LVPEI, as well as to other eye banks in India and nearby countries. It runs training programs for eye bank technicians and grief counsellors and is considered an international training and resource centre. Its community banking efforts have been very successful, as have the public awareness programs it runs regularly. As with the activities of the other bodies under LVPEI, it has a comprehensive approach: research is an integral part of its work. SightLife International, Seattle, USA, recognises us as a Centre of Excellence for Eye Banking. ESI and SightLife have also supported the eye banks at LVPEI's Tertiary Centres, Drushti Daan in Bhubaneswar and the Mohsin Eye Bank, Visakhapatnam.

It is because of its very active, international standard eye bank that LVPEI has been able to perform the largest number of keratoplasties done by a single centre in the world.

**The Ramayamma  
International Eye Bank  
has harvested 36,635 donor  
corneas and transplanted  
19,247 of them to needy  
patients.**

LVPEI, 2012



#### USAGE OF CORNEAS

For surgeries on own campus

Training & Research

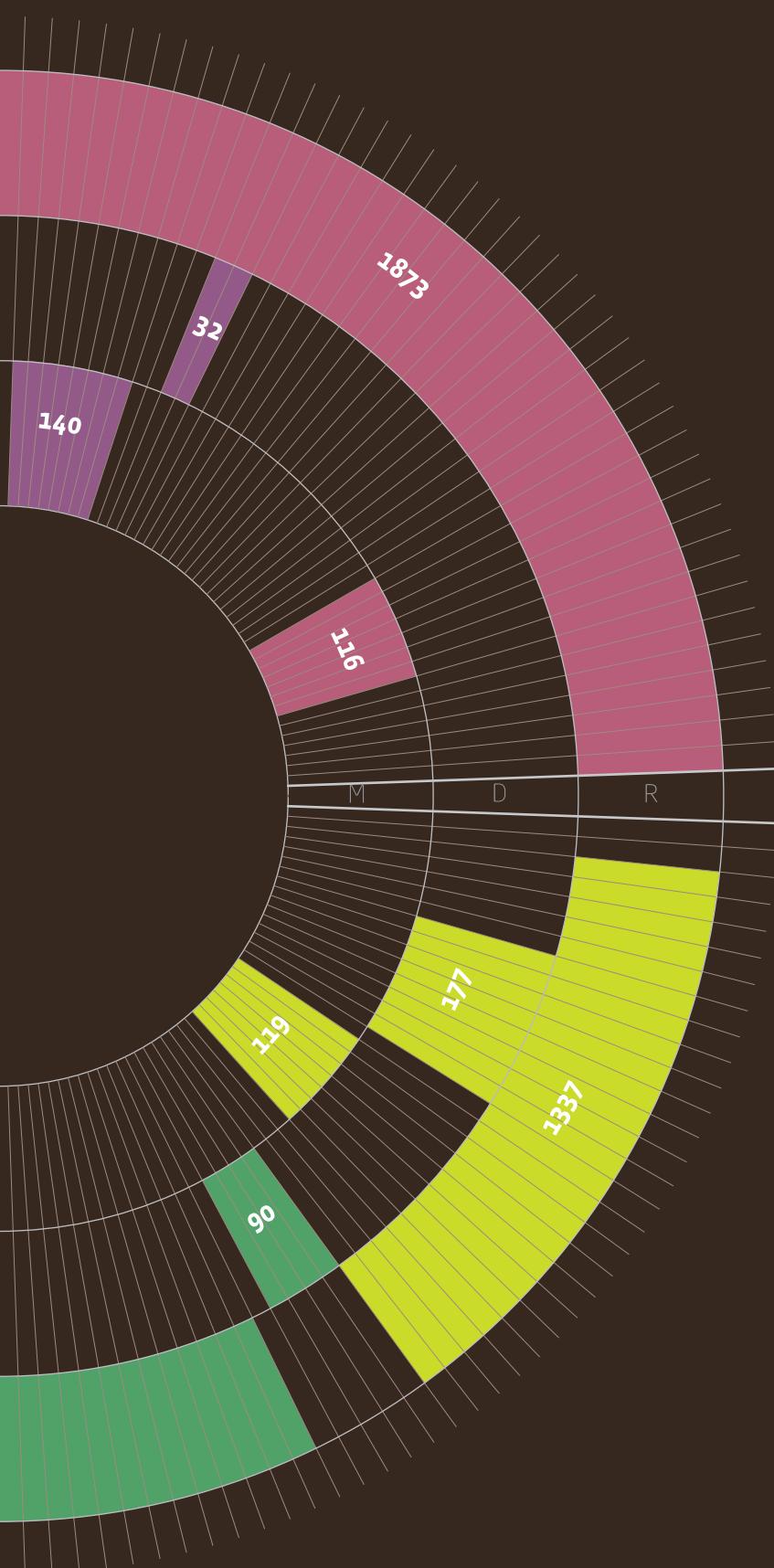
Surgeons outside LVPEI

Other LVPEI Campuses

Motivated

Volunteered

From affiliate centres



Figures from LVPEI Annual Report, 2010-11

R Ramayamma International Eye Bank Hyderabad

D Drushti Daan Eye Bank Bhubaneswar

M Mohsin Eye Bank Visakhapatnam

# CHARTING IMPAIRMENT

## CAUSES OF BLINDNESS IN ADULTS



### Source

Dandona, L., Dandona, R., Srinivas, M., et al., *Blindness in the Indian state of Andhra Pradesh*. *Invest Ophthalmol Vis Sci*, 2001. 42(5): p. 908-16.

## CAUSES OF BLINDNESS IN CHILDREN



Congenital Anomalies of Eye Ball **33.3%**



Corneal  
Blindness **24.6 %**



Congenital  
Cataract **18.8 %**



Genetic Retinal Dystrophies  
& Degenerations **12.3 %**



Optic Nerve  
Anomalies **6 %**



Uveitis **4.3 %**



Uncorrected  
Refractive Errors **2.8 %**



Childhood  
Glaucoma **2.5 %**



Retinoblastoma **1.4 %**



Retinopathy of  
Prematurity **1 %**

### Sources

1. *Blindness in children: a worldwide perspective.* Parikshit Gogate, Clare Gilbert. Community Eye Health Journal | Vol 20 no. 62 | June 2007, p.32
2. *Planning to reduce childhood blindness in India.* L Dandona, CE Gilbert, JS Rahi, GN Rao. Indian J Ophthalmol 1998;46:117-22



Up to 60% of children  
die within a year of  
becoming blind.

Vision 2020, The Right to Sight



*Even though I am a medical doctor, a postgraduate in internal medicine with a fellowship in nephrology, I was not aware of ROP or its presenting symptoms. It was providence that the ophthalmologist who saw my baby had trained as a fellow at LVPEI and immediately referred us here. I rushed here and could save my baby's eyes and secure its future. Once I go back to my medical practice in Nepal, I plan to dedicate time to raising awareness on timely screening and intervention to prevent avoidable blindness.*

Dr. Shyam Rouniyar

Dr. Shyam Rouniyar is from Nepal. He had twin baby boys born prematurely (29 weeks). One of them developed ROP and the couple rushed to LVPEI with both their babies. While the mother remained at the hotel with the healthy twin, the father brought in the other. The baby was successfully operated upon and brought back from the brink of blindness.

The World Health Organization's VISION 2020: The Right to Sight initiative, has a strong focus on child blindness. Nothing is more heart-wrenching than a little child who cannot see. However, the sooner a child is treated or rehabilitated, the greater are its chances of having a fairly normal life. The good news is children respond well to treatment if it is begun early. If, however, treatment is delayed, they suffer more, because they have more 'blind years'. A lack of medical personnel versed in pediatric eye conditions and para-ophthalmic support, and improper infrastructure are the cause of the high incidence of vision problems among children in the developing world.

### **JASTI V RAMANAMMA CHILDREN'S EYE CARE CENTRE**

In 1997, LVPEI started the Jasti V Ramanamma Children's Eye Care Centre (CECC), the first dedicated children's eye care centre in the developing world, with the support of Dr. Jasti Rattaiah and Smt V Ramanamma and a matching grant from Sightsavers International, UK. Since then, the centre has received substantial support from ORBIS International, USA, and recently from ITC Limited, India. The CECC seeks to consolidate a range of treatments for pediatric eye disorders integrated with rehabilitation services and a sustained goal of capacity building and training.

State-of-the-art facilities for surgery and outpatients, combined with an active research department that collaborates and publishes new findings, and education programs that train local and international eye care personnel promise a hope for thousands of children now and in the future. Excellent diagnostic services and a compassionate and expert set of physicians help children with partial or total visual impairment to get better, or to improve their lives. Creating sustainable pediatric eye care projects is a major goal of the centre, and support groups for parents and children form a core activity.

The CECC has special programs in place to fight and treat congenital cataract in newborn babies, including a genetic evaluation if needed. Pediatric glaucoma with all its variables is studied and confronted with experience and knowledge. A special Retinopathy of Prematurity (ROP) program is in place to deal with this disease that affects premature babies.

Along with the CECC, we have two Tertiary Eye Care Centres for children's pediatric care, both possible because of generous donors, parents who tragically lost their own children and chose to give back to society in memory of their loss.

### **THE MIRIAM HYMAN CHILDREN'S EYE CARE CENTRE, BHUBANESWAR**

<sup>134</sup> The MHCECC addresses a host of eye diseases in its host state, Odisha. The care

given is world class with advanced equipment and talented staff who administer excellent pediatric care to children of all classes and income. Reaching deep into the community, this centre partners with government agencies to conduct screenings in schools. The highly trained faculty of MHCECC contributes to peer reviewed journals and is a regular participant in national and international meets.

### **DAVID BROWN CHILDREN'S EYE CARE CENTRE, VIJAYAWADA**

Similar to the MHCECC, this centre was set up by a trust and is a Tertiary Centre for pediatric eye care in the coastal town of Vijayawada, Andhra Pradesh. Like its Odisha counterpart, the centre seeks out economically disadvantaged children who suffer from visual impairment and offers them cutting edge treatments and rehabilitative support. Its services will extend to 5 districts with an approximate population of 15 million.

### **NIMMAGADDA PRASAD CHILDREN'S EYE CARE CENTRE**

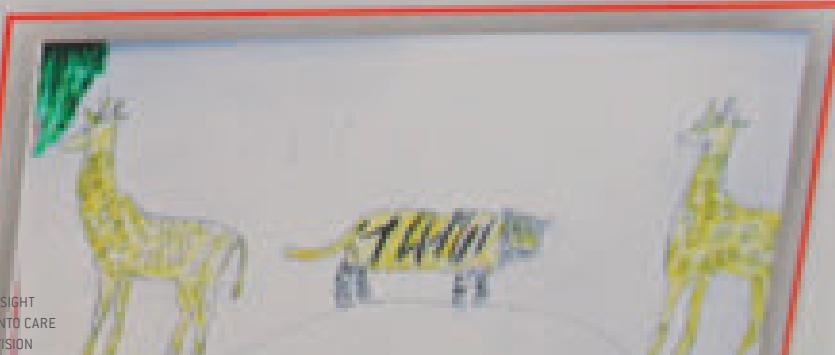
Situated at the GMR Varalakshmi Campus, Visakhapatnam, this centre was set up to work towards preventing childhood blindness and creating awareness about its causes. Its goal is to ensure that "no child in Andhra Pradesh is needlessly blind or visually impaired by the year 2020". The Nimmagadda Foundation offers support in the areas of infrastructure development, screening and treatment including spectacles, awareness generation, development of information, education and communication (IEC) material, training and other community based programs. The collaborative Nimmagadda Prasad-LVPEI Children's Eye Health Initiative sets up primary and community eye care programs. The fund will also help support 1000 non-paying complex surgeries in children annually, as well as the development of the centre itself.

### **CHILDREN'S EYE CANCER CENTRE**

20-30% of eye cancers happen to children. If untreated, these cancers are fatal, but if treated properly and in time, there is almost 85% chance of recovering useful vision, and saving children's lives. To promote early detection, the Institute puts emphasis on advocacy aimed at raising awareness about the symptoms of the disease. In 2004, the Sightsavers International funded the Children's Eye Cancer Centre, a Tertiary Centre for the management of cancer of the eye and related areas. The centre was inaugurated by international luminaries in the field of pediatric cancer: Alfred Knudson, Anna Meadows, Carol Shields, and Jerry Shields.

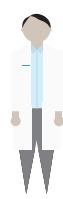
# Glaucoma occurs in 1 out of every 3300 births in Andhra Pradesh.

Andhra Pradesh Eye Disease Study I





Dr. Mandal has operated on over 1600 children with different forms of congenital and childhood glaucoma. In association with the APCG (Association of Parents of Children with Glaucoma), LVPEI organizes an annual meet, spreading awareness about the condition and building a sense of community. Because, an aware parent is an alert parent - a crucial ingredient for the healthy development of a child.



*The biggest challenge is to create awareness in the community about congenital glaucoma, a disease with a surgical cure. The sooner it is diagnosed and operated on, the better the results. That's why we have an annual children's day program with parents – I personally like to observe my patients in a social scenario to see how well they are coping with day-to-day interactions.*

Dr. Anil K Mandal

# TIME IS VISION

THE RETINOPATHY OF PREMATURITY PROGRAM

## Care of Eyes in a PREMATURE BABY

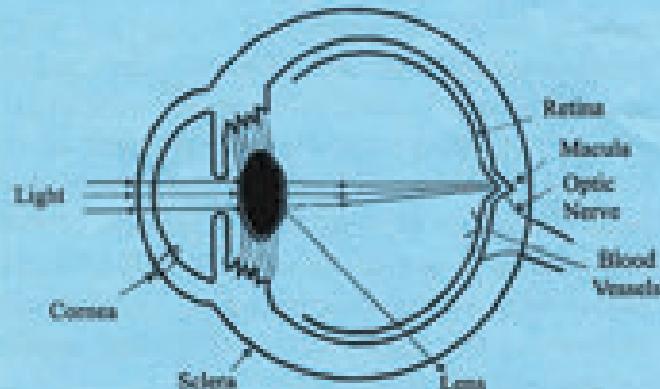


### Why Care of eyes in a Premature Baby ?

When a baby is growing inside its mother, it is in a protected environment. The baby develops slowly, till it is able to continue growing outside the mother. The eyeball growth is completed normally just few days before actual birth of a child. In a premature baby a number of problems can occur in the eyes, as they are not fully developed. The most important of these is called as 'Retinopathy Of Prematurity' or 'ROP'.

### The Eye & Retina

The eye is like a camera with a 'lens' in front and the 'Retina' which is like the film of a camera, lining the back wall of the eyeball. The retina receives light through the pupil, forms the image and sends the signals to the brain, for vision. It is supplied by its own blood vessels (Fig. 1). The central part of retina called macula is most important for fine vision. The blood vessels of the retina develop fully only when a full term baby is born. So at the time of birth these vessels are not developed fully.



### What is ROP ?

ROP is the disease affecting the retina and its blood vessels in some premature babies. The blood vessels grow in an abnormal way, especially in the smallest babies who have the most complications. The signs of ROP are usually apparent where they are still in the Neonatal Intensive Care Unit (NICU). ROP is a serious disorder. Once ROP starts, three things can happen.

- + In majority of babies with ROP, the blood vessels that do not grow correctly, heal completely before the baby is one year old, and may not affect on the vision.

Every sub-speciality at our hospitals is regarded with excellence of care. Dealing with tiny babies needs a measure of skill and a gentleness of demeanour which our physicians learn to possess through their daily interactions with patients and their thorough training. It's all in a day's work at LVPEI!

- In some babies, during the phase of healing, there occurs scarring in the retina. This scarring can lead to myopia (near sightedness), amblyopia (laziness of eye) or squint (strabismus). All these problems need medical care in the form of glasses, starting at an early age. It is important that an ophthalmologist continues to examine the baby's eyes regularly, to be sure that the child reaches school age with the best possible vision. Some children would need early surgery to correct the squint.
- When scarring from ROP is worse, the large scar tissue pulls off the retina from its place leading to retinal detachment. Retinal detachment usually means that the baby will not be able to see well, or it might even mean that the baby will become blind. Fortunately this happens only to a small number of eyes with ROP (about 5%).

## How to Care for ROP ?

All babies less than 35 weeks of gestation and/or less than 2.0 Kg. birth weight should be examined within 2-3 weeks of birth in the NICU, by the ophthalmologist who will dilate the pupils and examine the retina. This examination is painless and is done without any anaesthesia. The examination is done every one to two weeks till the development of retinal vessels is complete. If the baby's eyes are developing the more severe kind of ROP, the doctor will plan for laser therapy or cryo surgery to prevent severe vision loss. Now-a-days some of this treatment can be done in the NICU itself, due to portable machines, under supervision of the neonatologist. After treatment the baby needs constant eye evaluation, life long. Some babies may need very early surgery of the retina to prevent serious complications.

## Long term Eye Problems in Premature Babies

Besides Myopia, Squint, Amblyopia and ROP, premature babies, especially those with ROP, can develop other complications such as cataract (opacity in the lens), glaucoma (high pressure inside the eyes), late onset retinal detachments etc. All such babies need periodical examination. Remember that the children cannot tell about their visual problem and also any treatment needed, has best results if carried out early.

If a premature baby is sent home early from NICU, the child should see an ophthalmologist for ROP within 2-4 weeks of birth. **THE TIMINGS IS EXTREMELY IMPORTANT TO PROTECT EYES FROM SEVERE VISUAL LOSS.**

If you have problems, questions or concerns call us at

**L.V. Prasad Eye Institute**

Phone : (040) 3548267 / 3608262 Fax : (040) 3548271 Email : [retina@lvpeye.stph.net](mailto:retina@lvpeye.stph.net)

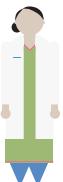


LVPEI is one of the first institutions in the country with a full-fledged Retinopathy of Prematurity department.

Dr. Padmaja Rani joined LVPEI in 2009. She sees 25 to 30 babies every week at NICUs (Neonatal Intensive Care Units).



*In a small way, she is helping the future see.*



*The greatest joy in the world is seeing little eyes follow light, when they come back to us 6 months after their first check up. Had it not been for the timely ROP screening, the child would be needlessly blind.*

Dr. Padmaja Kumari Rani



Parents relate heart-rending stories to us of their premature newborns noted blind at 4-6 months of age. The average parent does not know about ROP - making them aware is the first step to curb preventable blindness. Even today, all the babies we screen are referred by paediatricians.



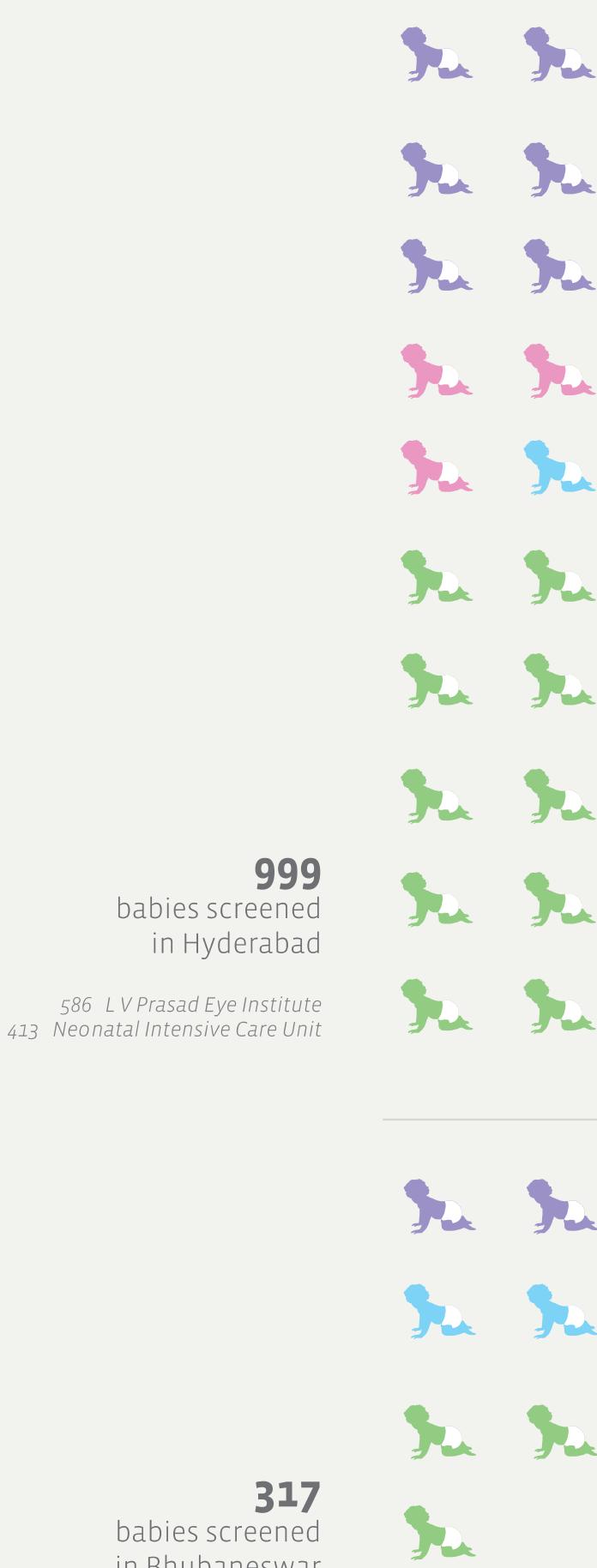


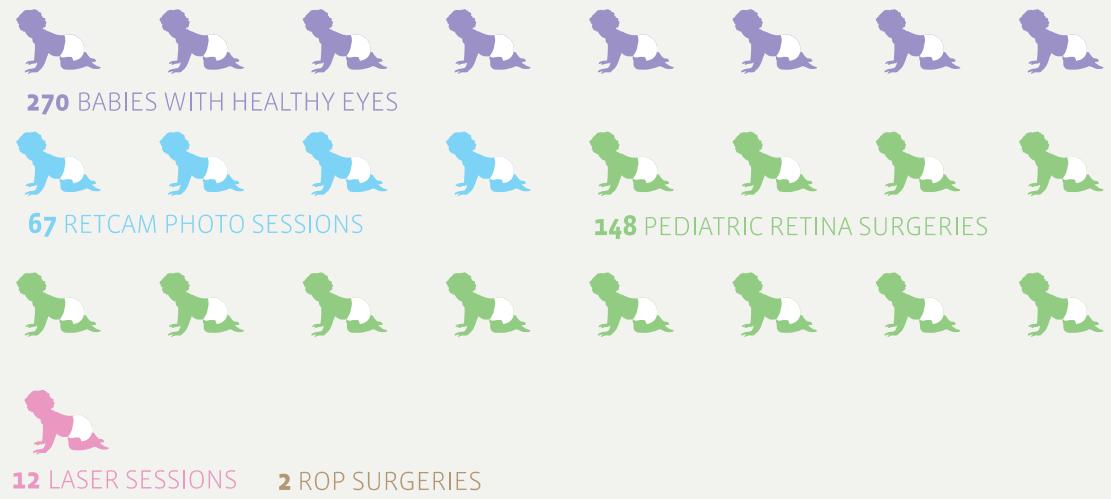
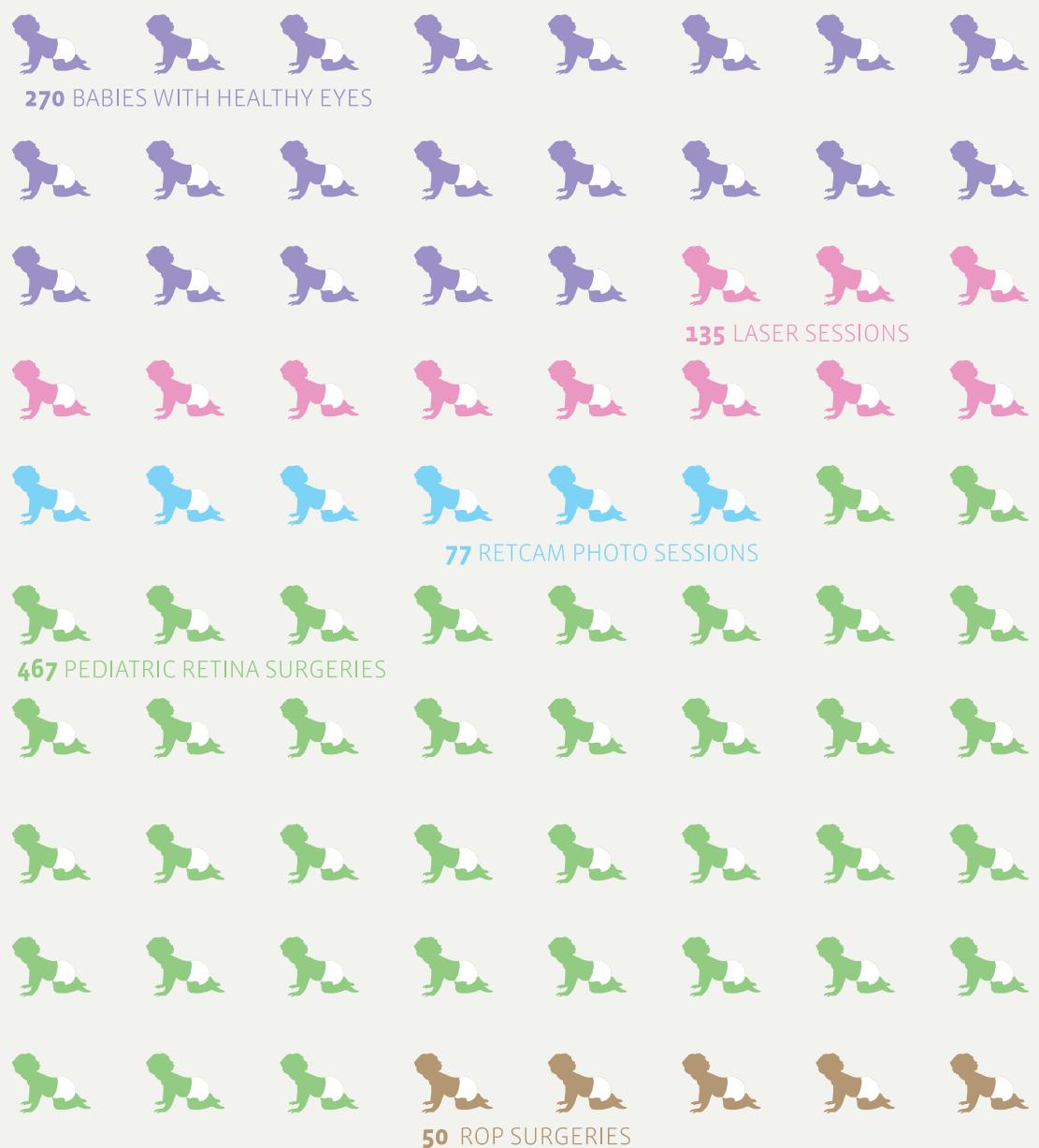
The science and art of preserving vision in these fragile newborns had to be taken out of the journals where it lay in the form of complicated evidence-based medical information and placed in the cribs amongst the caregivers.

Dr. SUBHADRA JALALI

## ROP SCREENINGS

- Babies with healthy eyes
- Laser Sessions
- Retcam Photo Sessions
- Pediatric Retina Surgeries
- ROP Surgeries





Figures from LVPEI annual report 2010-11

7765 babies have been screened by LVPEI since 1998, till March 2012





The mirrors of the soul reflect nothing of their inner workings to us. We only recognise the value of our vision when we are close to losing it. At LVPEI, we treasure the gift of sight, and invoke every power we possess to preserve it, and restore it, for each person we serve, whoever they may be. We respect the dignity of health.

# SIGHTLINES

## CLINICAL CARE

JUNE 1

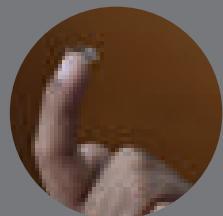
Patient services commenced at the L V Prasad Eye Institute. First paying and non paying patients seen



JUNE 1

Medical Record Services commenced with first paying record (light blue color code) and second non paying record (light green color code) documented manually

Ramayamma International Eye Bank set up with support from Gunnam Subba Rao Trust of Mrs. Ramayamma's family, and technical support from International Federation of Eye and Tissue Banks (IFETB), Baltimore, USA, and training support from Eyesight International (ESI), Canada.



First surgery performed

Bausch & Lomb Contact Lens Centre set up

RIEB launches the Hospital-based Corneal Retrieval Program (HCRP)

Computers  
introduced in  
Medical Records  
Department (MRD)

VST Centre for  
Glaucoma Care set up

Patient  
master index,  
appointment list  
and discharge  
summary  
computerised

Kanuri Santamma  
Centre for Vitreo  
Retinal Diseases set up

Bar code labels  
introduced on  
MRD folders

First exclusive  
Children's Eye Care  
Centre outside  
of the USA (Jasti  
V Ramanamma  
Children's Eye Care  
Centre)

'92

'93

'94

'95

'96

# SIGHTLINES

## CLINICAL CARE



Retinopathy of  
Prematurity  
screening in  
neonatal units

24/7 library upgraded  
with a donation from  
B R Barwale, and  
renamed the Barwale  
Matoshri library

The first  
comprehensive  
Ocular Oncology  
Service in India  
established

Clinical stem cell  
transplantation  
started

Designated as  
World Health  
Organization  
Centre for  
Prevention of  
Blindness

1997

'98

'99

2000

'01

Children's Eye  
Cancer Centre, a  
comprehensive  
facility, first such in  
India established

Gullapalli N Rao  
awarded Padma Shri  
(Republic Day honour  
from the President of  
India)

The first integrated  
Ocularistry service  
established

Set up two new  
Tertiary Care Centres  
in Bhubaneswar and  
Visakhapatnam

Gullapalli N  
Rao awarded  
International  
Prevention of  
Blindness Award  
from American  
Academy of  
Ophthalmology  
(AAO)

'02

'03

'04

'05

'06

Gullapalli N Rao is Chairman, Board of Trustees,  
President and CEO of IAPB, the first ever to be given  
all three responsibilities

# SIGHTLINES

## CLINICAL CARE



Dedicated  
Dacryology  
Service is set up

Paul Dubord  
Chair of Cornea  
instituted

'12

'13

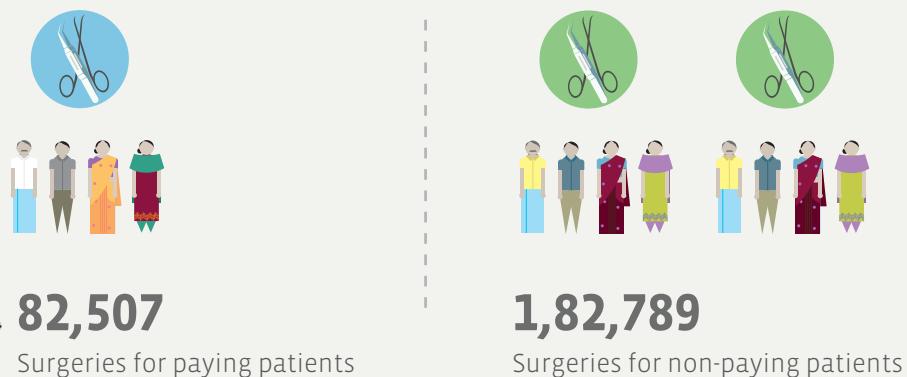
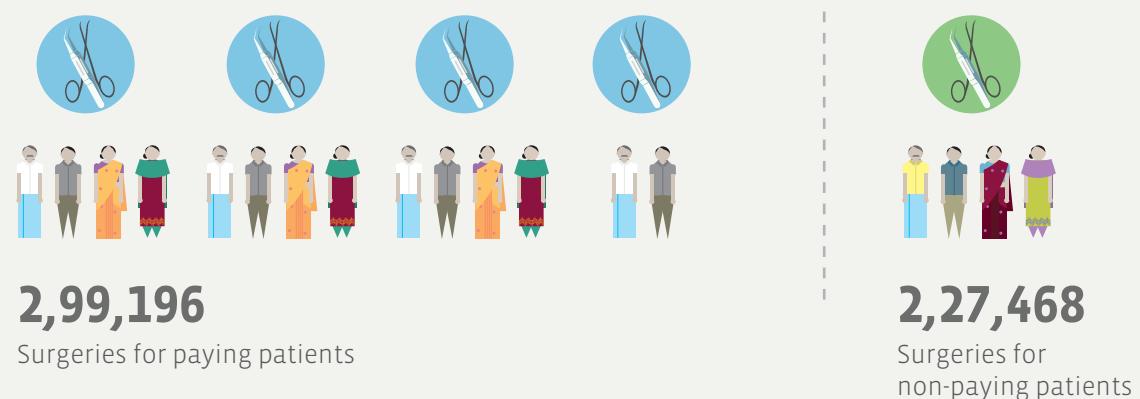
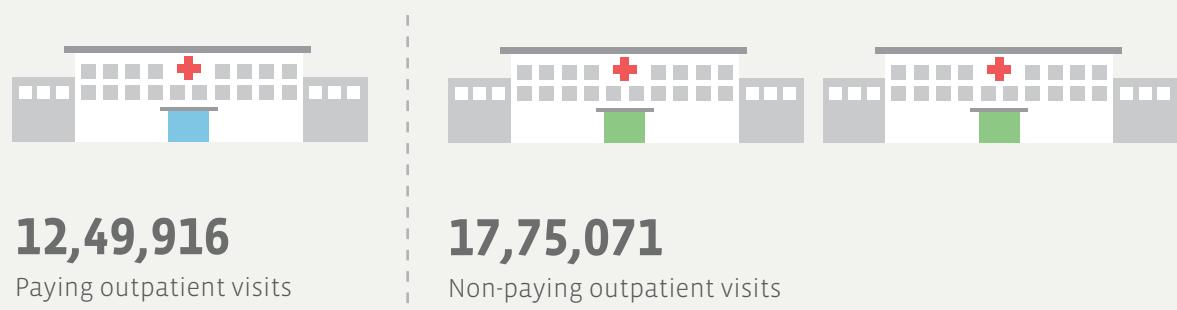
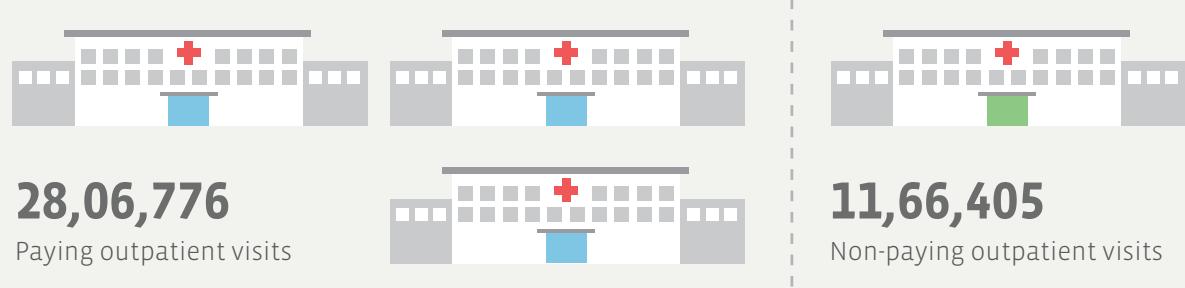
'14

'15

'16

## GETTING A PERSPECTIVE

### CLINICAL CARE



# 39,73,181

Outpatient visits at Tertiary and Advanced Quaternary Eye Care Centres from June 1, 1987 to March 31, 2012

*Includes LVPEI KAR campus, Hyderabad (32,92,861), LVPEI Bhubaneswar (3,51,498), LVPEI Visakhapatnam (2,95,567) and LVPEI Vijayawada (33,255).*

# 30,24,987

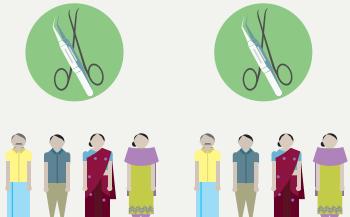
Outpatient visits at Primary Care, Secondary Care, Rural and Urban Partner Centres from April 1994 (with Tanuku) to March 31, 2012

*Includes Primary Care Centres/Vision Centres (8,73,533), Secondary Care Centres (7,08,902) and Rural & Urban Partner Centres (14,42,552).*

# 5,26,664

Surgeries at Tertiary and Advanced Quaternary Eye Care Centres from October 1987 to March 2012

*Includes LVPEI KAR campus, Hyderabad (4,60,822), LVPEI Bhubaneswar (33,515), LVPEI Visakhapatnam (30,476) and LVPEI Vijayawada (1,851).*



# 2,65,296

Surgeries at Secondary Care, Rural and Urban Partner Centres from October, 1994 (with Tanuku) to March 31, 2012.

*Includes Secondary Care Centres (87,341) and Rural & Urban Partner Centres (1,77,955).*

**8 am Quality Control**

**Report:** To check that the operating rooms are spick and span, one member of the faculty, on rotational basis, is placed on duty daily at 7 am in the OR where they must scrutinise every nook and corner of the entire OR complex (housing 9 operating rooms, and the pre-op/post-op/store/toilets and sterilisation areas) and submit a quality control report by 8 am.

**A tooth for an eye:** A colloquialism for MOOKP, a technique where a sliver of dental tissue is used to support a telescopic lens for patients who cannot undergo a conventional corneal transplant because of severe ocular surface damage.

**Cleanliness:** When we started out, ironically, we were not looked at as a hospital for the common man because of our very high standards and novel ideas. While these standards included the quality of clinical care, it often went beyond it to other aspects like

tremendous emphasis on cleanliness and hygiene. This last, especially, made us stand apart. Cleanliness is a cause driven from the top. An active interest is taken in training housekeeping staff to make sure every nook and cranny of the Institute, especially every toilet, is spotlessly clean. Facilities inspections are sometimes unannounced, ensuring that if one swipes one's finger against even the tops of electrical junction boxes they would not come away dusty. And there was some good natured banter from friends who dropped by to visit, about LVPEI staff cleaning up their footprints after them as they walked!

**EMR:** LVPEI is converting records of all patients over the last 25 years into an easily retrievable digital format. Switching over to Electronic Medical Records is efficient and eco-friendly, in line with LVPEI's policies.

**Grooming Allowance:**

The rules demand that employees be well groomed: shave and bathe daily and wear leather sandals or shoes (in the early days it was common for people to wear rubber sandals and some would even be barefoot). When some employees complained about the expense of

maintaining such high levels of 'hygiene' a grooming allowance was promptly introduced for the general category staff.

**Hopeless:** Dr. Sangwan's term for the beginning of hope - when people turn up at LVPEI after visiting countless doctors who tell them that nothing can be done about their condition. We strive to find a way out of "hopeless" conditions.



**Iris Scan:** Why use identity cards or registers? For an eye institute the Iris Scanner is the natural choice for biometric identification. All LVPEI employees sign in to work with an iris scan.

**Lift:** Employees are encouraged to use the stairs so that the lifts are free for use by patients. Employees voluntarily comply as they see this as good physical exercise. It is not uncommon to see older staff members, including physicians, leading by example in opting to use the stairs.

**NICU:** Dedicated to new born babies, the Neonatal Intensive Care Unit is where all prematurely born infants undergo ROP screening. Our ROP team visits NICUs at regular intervals for these screenings.

**No Smoking Zone:** The entire campus has been a no smoking area from its inception. This was at a time when there was no such concept in health facilities and other public places in India. One day the smell of tobacco floated into the OPD and immediately a hunt was launched to identify the culprit - an air conditioner repair man who couldn't read the signs. He had never heard of such 'ridiculous' rules! Of course he was promptly shunted back to his parent company with a note that he should never come to LVPEI to repair ACs again!

**OPD:** The Out Patient Department at LVPEI is tuned to make every visit to the Institution a smooth and efficient one. An attendant guides patients around, from the waiting lounges to the OPD and diagnostic facilities as required, doing away with the need for internal signage!

**Patient Care Assistant (PCA):** No patient is to be left unattended. The

ubiquitous PCAs are always at hand to guide the patient as they move from department to department in the Institute. The first woman PCA came on board quite by chance. When PCA Shankar Rao died leaving his young minimally educated wife and children behind, the Institute opened its doors to appoint his wife as the first and one of the only two women PCAs till date. The area in the front lobby where Shankar Rao would stand on duty was named after him with a plaque on the wall, and his wife Savitha continues to be employed with the institute.

**Remain Seated; Carry On With Work:** There is an unwritten rule that a person sitting down and working must continue to do so even if the Chairman, Dr. Rao, or anyone else in the management walks in. No getting up out of sheer politeness while at lunch even if senior faculty come in and all seats in the lunch room are taken. It is not an uncommon sight to see senior faculty standing and eating while fellows or housekeeping staff continue sitting, finishing their lunch before getting up.

**Sight Savers:** For every patient who pays for

treatment at LVPEI, there are an equal number who cannot afford to - but, everyone must be treated. This is possible because of donations made by those we call Sight Savers or supporters, both patients and general public. A system of cross subsidy, where those patients who have the means pay enough to cover for those patients who don't ensures that eye care reaches every section of society.



**Sircharge :** No Sir! Or you pay a fine. Rs 10 for calling someone 'sir' and Rs 100 for letting someone call you 'sir'!

**The Policy Manual:** A document of the regulations of LVPEI to be followed by every employee in letter and spirit. From no smoking to no venture capitalists, all the dos and don'ts at LVPEI are explained in the manual.

We thought we were  
making a difference  
to the patients who  
came to us... but  
then we thought,

...what about those  
who could not  
come to us? That  
was what led to the  
outreach programs.

Gullapalli N Rao

SO  
THAT  
ALL  
MAY  
SEE

3.

# TRAVERSING BARRIERS

COMMUNITY EYE CARE



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*The road is often winding, and sometimes hardly there*

*Even those who haven't met her instantly recognise Deepthi as she pulls out her Tumbling Es.*



*Familiar nods and smiles punctuate her journey along the dusty village streets*

*Deep in the interiors of Andhra Pradesh, she is our first point of contact with the people of Charla Mandal. Very often, she is their first contact with eye care.*

## TRAVERSING BARRIERS

It had been over a decade since LVPEI had started. Our high standards of care and our sustained focus on the patient meant thousands of surgeries completed, thousands of eyes cured. But there were thousands more whom we had never touched. Living in small towns and villages, some far away, others closer, but all a world away from healthcare of any kind. Blindness doesn't distinguish between rich and poor, urban and rural. Eye care can't afford to. Yes, we could, (and did), treat around 50% of patients free of cost. But what about those who never sought treatment?

It was time to widen our reach.

There is 1 ophthalmologist for every 100,000 people in India. This wouldn't be such a bad thing if there were enough other eye care providers like administrative, para-medical and rehabilitation professionals. It would matter less if there were eye care personnel distributed equally among urban and rural areas. Advances in science and technology are rife; new product development and surgical breakthroughs happen everyday; money is being poured into the health sector: but how much of this actually reaches the larger population? The truth is that the delivery of health is still far from adequate. Those with the greatest need have the least access.

It was clear that we needed to go to those who could not come to us because they were too poor, or too far, or too disempowered. To give EXCELLENCE, yes, but also EQUITY. This became our most dearly held principle, and a miracle happened: those for whom blindness was once destiny, now suddenly had a ray of hope piercing their darkness. Thus our First Namaste to eye care blossomed, overcoming distance and perceptions, traversing the barriers of access, affordability and availability.



Between 1996 and 2000, a seminal study by LVPEI on the spread of eye disease arrived at some startling conclusions. The first scientifically designed epidemiological study of its kind, the Andhra Pradesh Eye Disease Study (APEDS) gave the Institute much fodder on preventable blindness and vision impairment. It revealed the huge numbers of people in Andhra Pradesh who suffer from vision problems, the lack of access and opportunity these people – especially those in rural areas belonging to lower socio-economic strata – have to diagnosis and treatment of their conditions.

<sup>164</sup> For the first time, we had hard evidence that even our Secondary Centres were beyond

the reach of many people. This study provided us the insight that unless our arms extended outwards, beyond urban centres and the middle classes, we would struggle to achieve our vision, 'so that all may see'. We based our unique, sustainable model of eye care treatment and delivery on these findings.

We needed to reach the unreached, see the unseen.

Fresh, new ways of distributing superior healthcare to people were needed. An innovative equation was formulated:

organise the sector +  
create effective delivery channels +  
upgrade training programs and  
continuing medical education programs = increased reach and quality  
of healthcare

Slowly, we started perceiving that in the multilayered and complex society of the Indian village, there were many hurdles to cross while distributing healthcare. And that poverty and geographic difficulties were just two of those hurdles. Our policies and programs had to be holistic and inclusive, using local knowledge and the community's co-operation. Health is usually way down on the list of priorities of the people, impacted as they are by economics, religion, illiteracy, linguistic and cultural issues, lifestyles, the hierarchies of gender and caste, and local politics. Each of these inputs affects people's ability to reach healthcare and for care to reach people.

And so we made a commitment of quality care to the local community, which we honour each day. We worked at it, getting the population used to the idea of seeking eye care, of trusting doctors and field workers, gently easing our way into the hearts of people. The first Vision Centre was set up at Chagallu village in West Godavari district in 2002. The key words were appropriate, available, affordable, accessible... all without compromising even a jot of quality.

This was the spark that ignited the visionary idea of the Eye Health Pyramid. We meet the needs of the people at the grassroot level through the community itself. Every plan we formulate is multi-pronged, and works closely with the village infrastructure, involving people's issues in its basic framework. The same excellent care percolates down from our Centre of Excellence and Tertiary Centres to the secondary and village level, down to the humblest Vision Centre or outreach activities. At the same time, any person can access any centre on any level of the pyramid, from bottom to top. And the model is comprehensive: working at prevention, early intervention, and educating people on eye diseases. We call it the pyramid of trust.



*They have seen the world change*







A rural door to door survey being conducted.

**The APEDS established that blindness and visual impairment increased with age, were more common in females, among people of lower socio-economic strata and in rural areas.**

Andhra Pradesh Eye Disease Study,  
1996-2000





At 60, she lives by herself in a remote village of Andhra Pradesh. Her vision had been steadily getting hazy, but she had no one to tell. Her son had moved to the city two, perhaps three, years back – she didn't want to bother him.



Meena is 57. She still goes to work in the fields but not for as long as she would like to because after dusk she cannot see that clearly anymore.



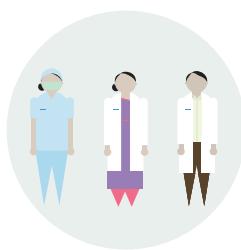
Thangamma, 67, lives with her family. She doesn't want her gradual loss of sight to affect her independence at home.

# GRASSROOTS TO PEAKS

## A UNIQUE MODEL OF EYE HEALTH

10 years of ICARE gave birth to the LVPEI Eye Health Pyramid. A 5-tiered model, built on a base of community engagement; a solid infrastructure that is run by trained people. The pyramid moves up from the grass root level to Primary Care Centres which cover groups of villages, then Secondary Care Centres at the district level, leading to the Tertiary Centres which are in cities. The peak of the pyramid culminates in a Centre of Excellence.

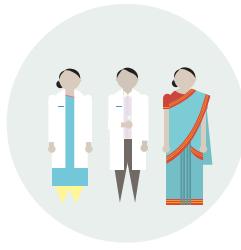
CENTRE OF EXCELLENCE



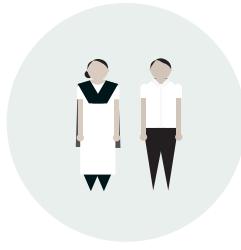
TERTIARY CENTRES



SECONDARY CARE SERVICE CENTRES



PRIMARY CARE VISION CENTRES



VISION HEALTH GUARDIANS



Eye care percolates to places it has never been before – because of this simple, yet highly effective model. The aim was and continues to be excellent medical care. But quietly, it is helping the patriarch of a weaver family get back on his loom and a housewife-turned-field-worker earn a livelihood. Quietly, it is transforming the community. The desire to reach the unreachable gave us wings.

At the top of the pyramid, the institute's campus in Hyderabad caters to a population of 50 million, treats complex diseases, trains trainers in subspecialties and provides rehabilitation services, does cutting edge research and engages in advocacy, planning and policy.

2,00,000 OUTPATIENT CONSULTATIONS  
25,000 SURGERIES PERFORMED  
250 PROFESSIONALS TRAINED  
50 RESEARCH PAPERS PUBLISHED  
2,500 CORNEAS COLLECTED  
3,000 PEOPLE PROVIDED WITH LOW VISION SERVICES

(see photo stories in chapters 2, 3, 4, 5, 6 and 7)

Networked with the Secondary Centres, these are in cities (Visakhapatnam, Bhubaneswar and Vijayawada. The centres provide a comprehensive range of services as well as training, each serving 5 million people.

75,000 OUTPATIENT CONSULTATIONS  
10,000 SURGERIES PERFORMED  
100 PROFESSIONALS TRAINED  
10 RESEARCH PAPERS PUBLISHED

(see photo stories in chapters 2, 5 and 7)

Networked with the Vision Centres and serving a population of 500,000, they provide comprehensive ophthalmological care that can diagnose diseases and offer high quality surgical care for cataract – the most common cause of blindness. The centres employ a team approach with members recruited from the local community and trained at the Centre of Excellence.

10,000-15,000 OUTSTATION CONSULTATIONS  
1,500-2,000 SURGERIES PERFORMED  
50 COMMUNITY-BASED SCREENING ACTIVITIES

(see photo stories in chapters 2 and 3)

Serving the primary eye health needs of the community, covering one cluster of villages with a target of around 50,000 people. Staffed by local people trained to address eye care needs.

2,500 PEOPLE SCREENED  
2,500 SCHOOL CHILDREN SCREENED  
400 PAIRS OF SPECTACLES DISPENSED  
500 IDENTIFIED AND REFERRED TO NEXT LEVEL

(see photo stories in chapter 3)

Young people from the area trained by ICARE who informally supervise the eye health of about 5000 people through door-to-door surveys etc. They also screen for diabetes and hypertension.

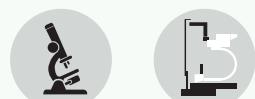
(see photo stories in chapter 3)

# A PYRAMID OF TRUST

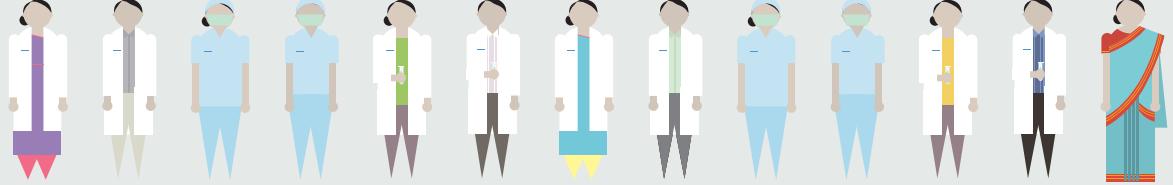
## CENTRE OF EXCELLENCE



## TERTIAL CENTRE



## SECONDARY CARE SERVICE CENTRE



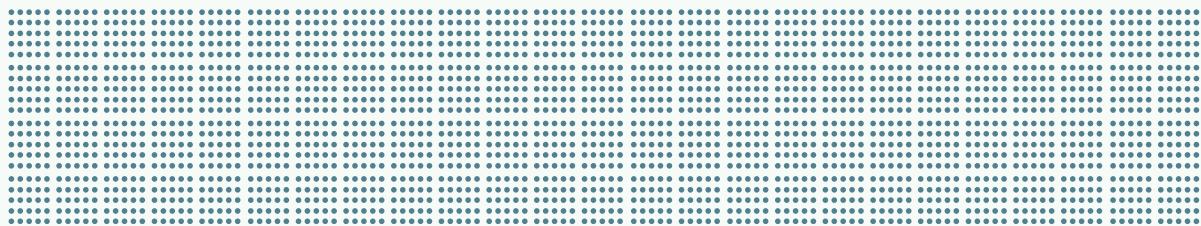
## PRIMARY CARE VISION CENTRE



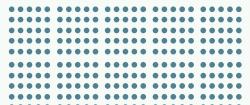
## COMMUNITY EYE CARE



This distinctive pyramid has been adopted by the Government of India, the World Health Organization, and the Australian government in its overseas development programs.



For a population of  
5,00,00,000



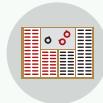
For a population of  
50,00,000



For a population of  
5,00,000



For a population of  
50,000



For a population of  
5,000

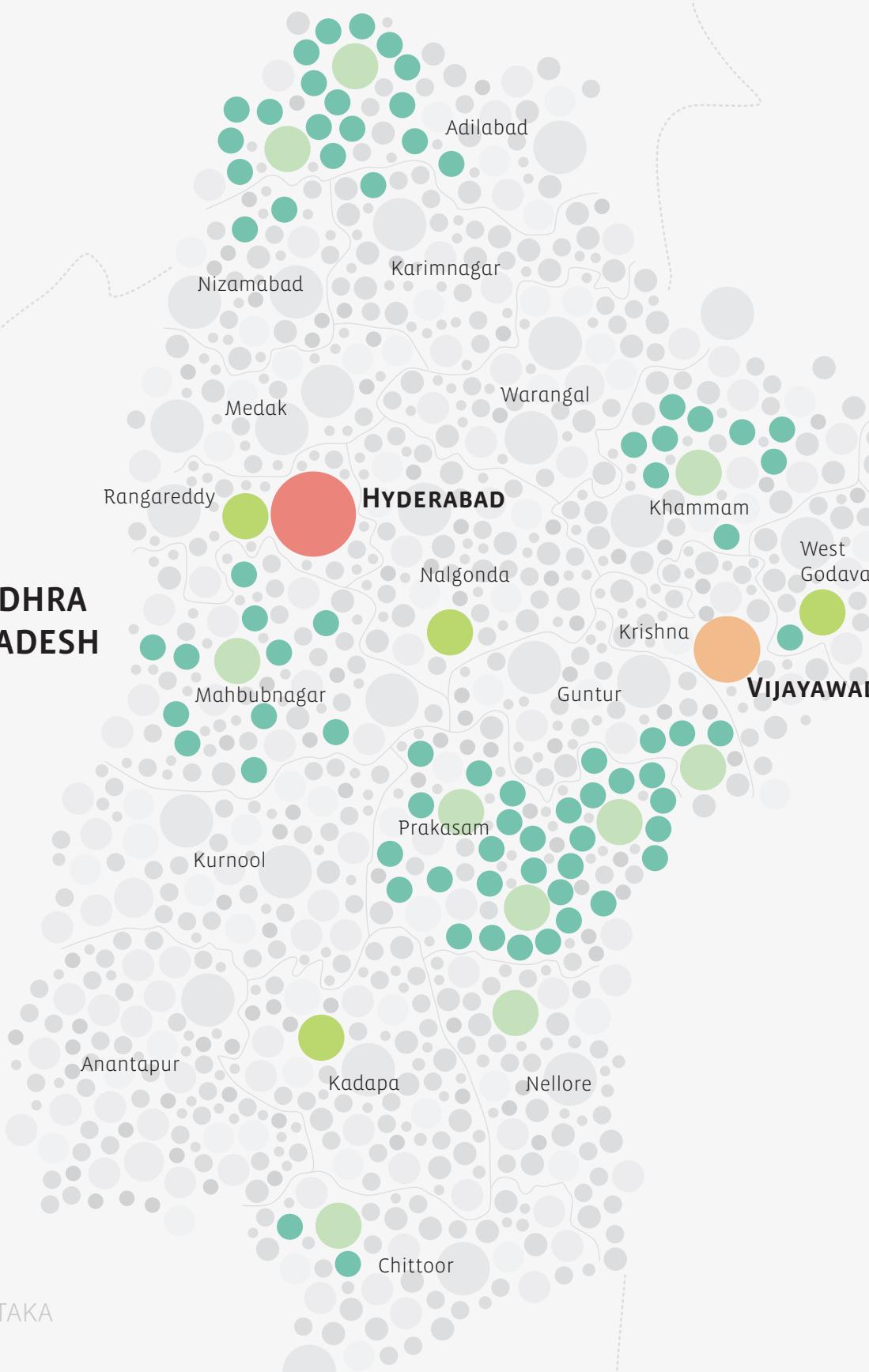


Figures are average for a year.

MADHYA PRADESH

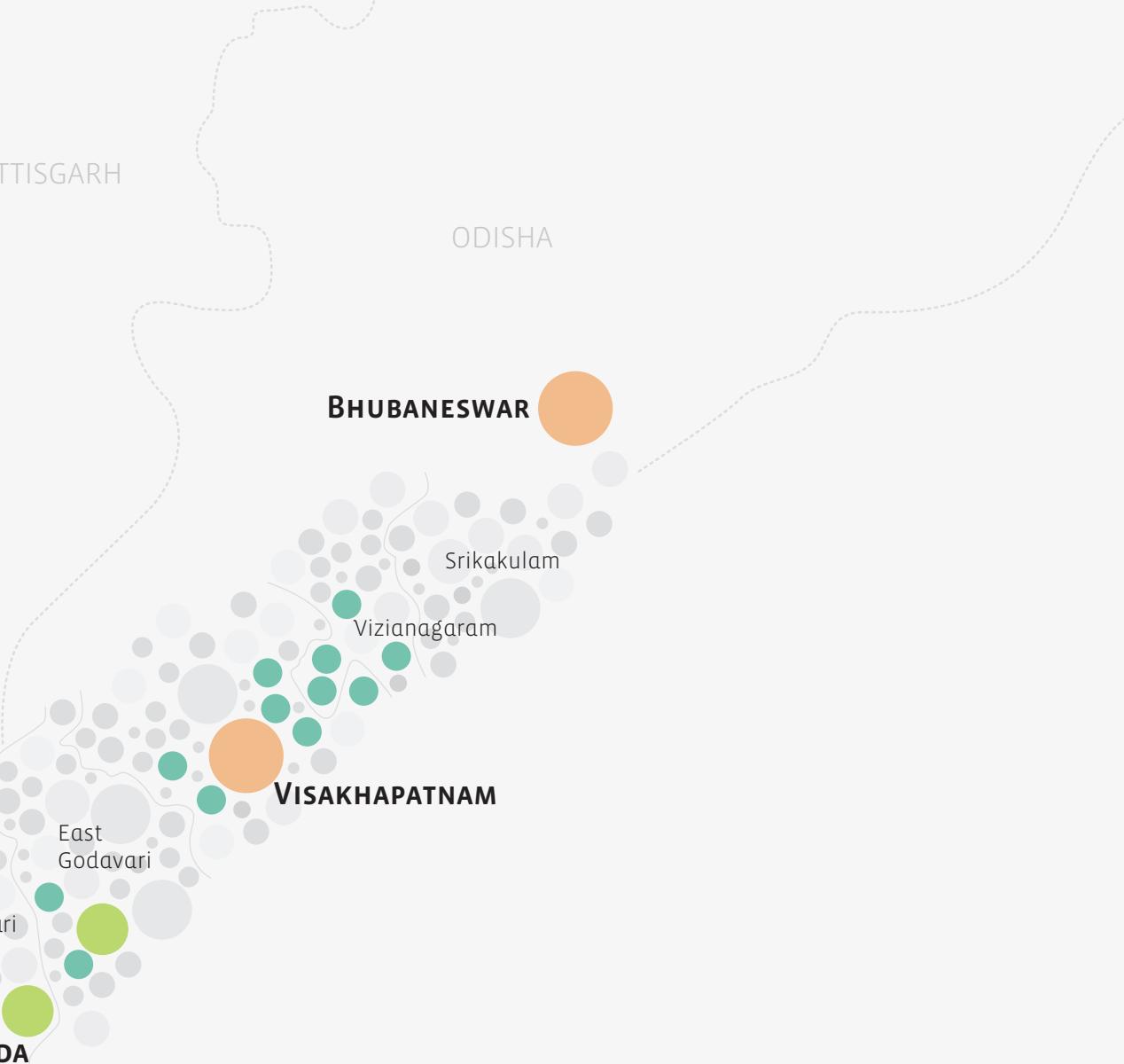
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## ANDHRA PRADESH



KARNATAKA

TAMIL NADU



## THE COLOURS OF SIGHT



CENTRE OF EXCELLENCE



TERTIARY CENTRES



SECONDARY CARE SERVICE CENTRES

Satellite Care Centres



Partner Centres



PRIMARY CARE VISION CENTRES

# CYCLE TRAILS



*I cycle over 10 kilometers, visiting multiple villages in my district. While usually I screen old women and men, I have found a number of children who have problems with their eyesight.*

*I like my work. My baby fusses sometimes but I am happy to earn for my family.*

Deepthi, 23  
Field Worker

Deepthi is a mother of a 3 year old boy. Like most girls in her school in Cherla, she dropped out after class X. She was identified by our team in 2011. Cheerful, friendly and sincere, she was a good fit as a field worker who has to interact and win the trust of many people. With her income as a field worker and her husband's daily wages as a construction labourer, the family of three is now making ends meet.

She is a familiar face in the five villages on her beat. With her eye charts and torch neatly bundled in the basket of her pink cycle, she visits nearly 30 homes a day. While most people are happy to do the test, there are some who resist it. They worry about the eye care costs if their diagnosis is positive – even after being told it is free. But most, she says happily, come around – especially on her second visit.







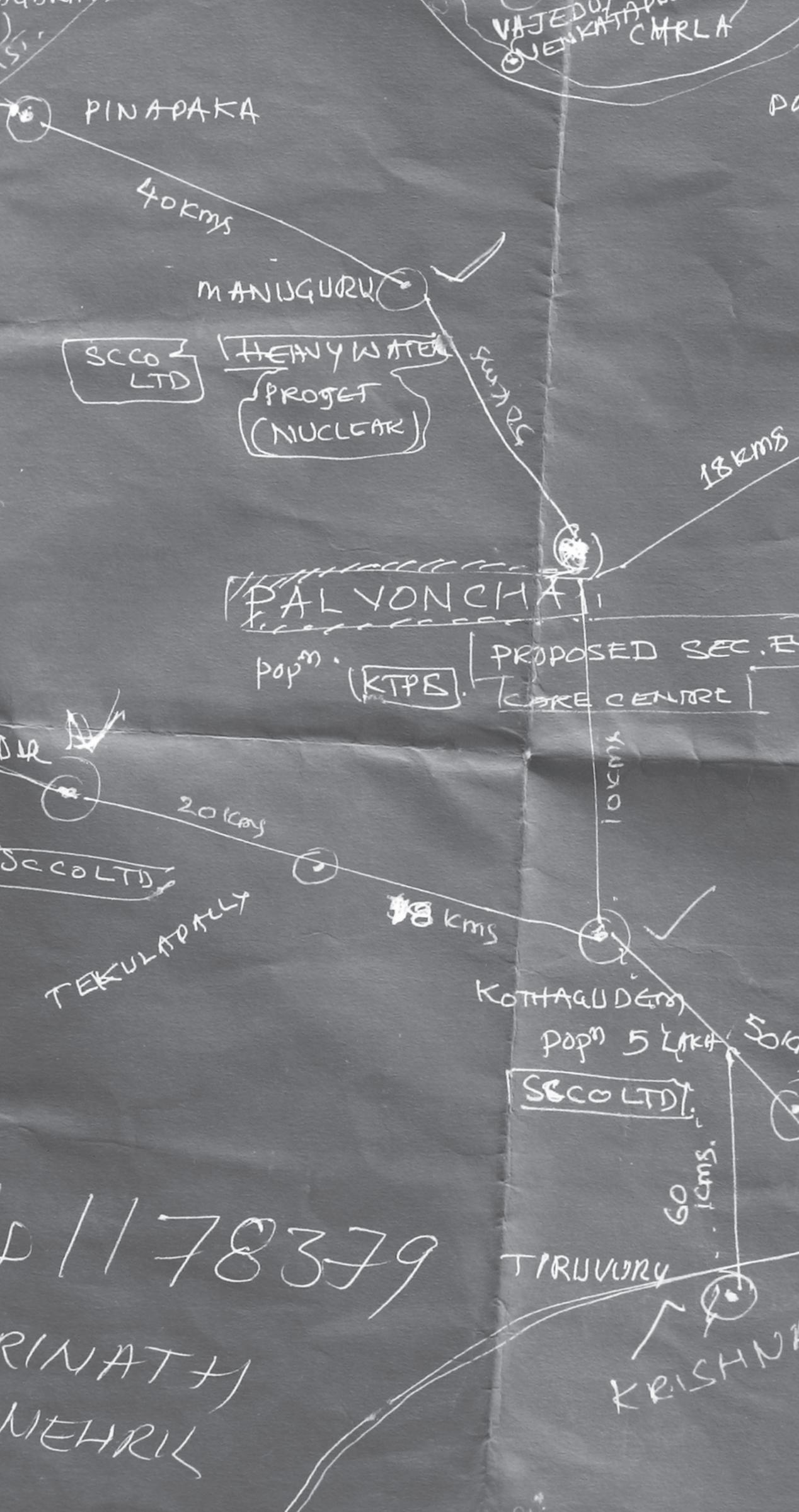
*Curious eyes follow her sight...*

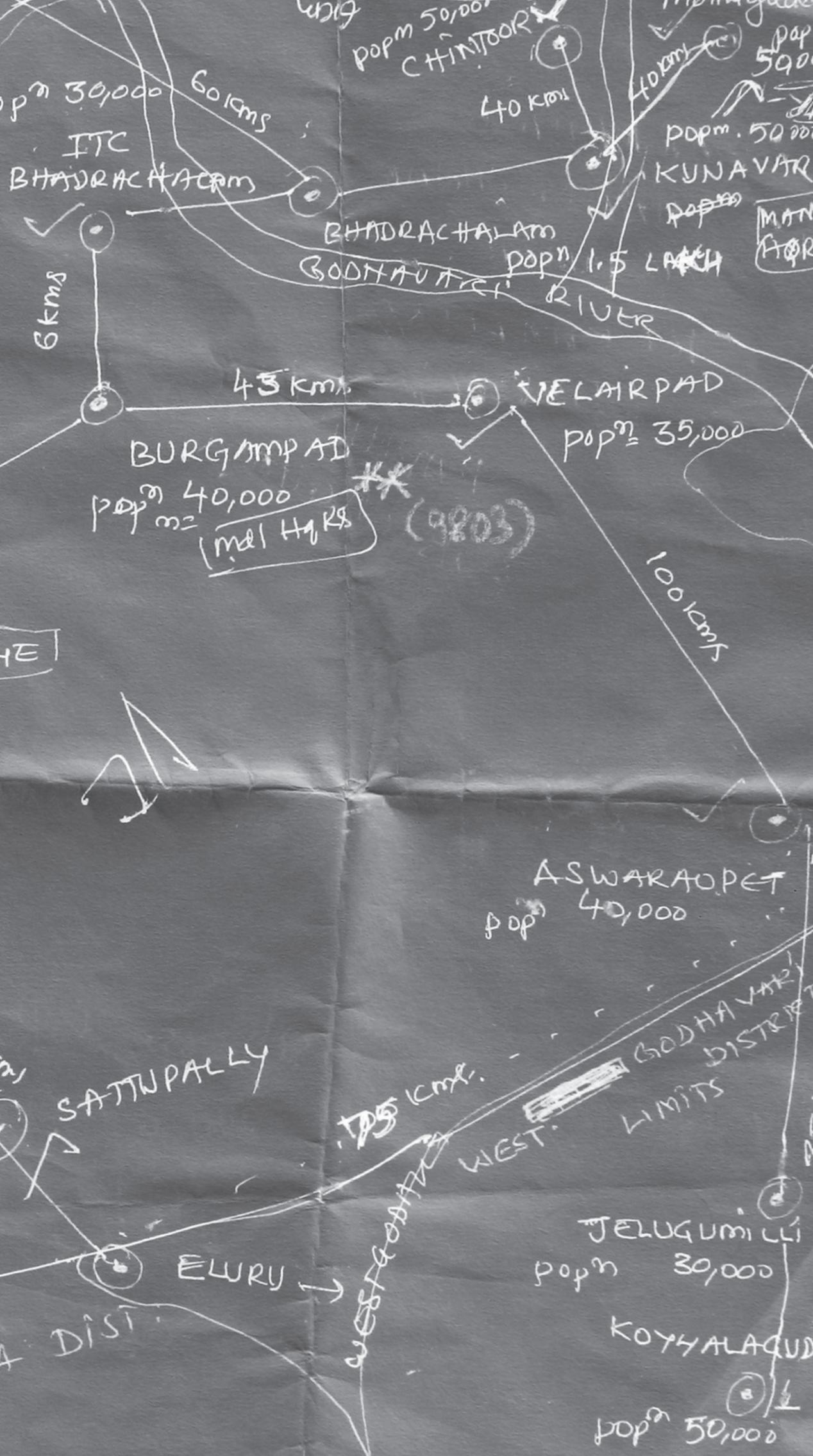


Deepthi cycles alone through remote, almost inaccessible villages of Andhra Pradesh. On that arid day in November three ladies in their 60s showed signs of cataract. Old friends and neighbours, Yellamma, Venkatalakshmi and Thangamma made their maiden trip to the Primary Centre. While Yellamma was nervous about her impending surgery at the Secondary Centre, her two friends tried to cheer her up.

Testing their ability to identify the tumbling Es at varying distances, Deepthi notes down every participant's result. She refers those who show signs of deteriorating sight to the closest Vision Centre. A regular visitor to the village, Deepthi routinely drops in to ensure that those identified do actually follow through with their eye care.







Close up of one of the roughly drawn maps used by the Vision Centre team to chart their plans in Paloncha

**No one to bring me  
surgery**

**Afraid of surgi**

**I'm a woman, I can't go alone**

**Don't know  
where to go**

**No time to undergo**

## BARRIERS TO ACCESS

***Unable to  
afford surgery***

***No need or desire for  
surgery***

***Able to see adequately***

***Cataract not mature  
enough***

# FIRST NAMASTE TO EYE CARE



*I screen the eyes of the local community and talk to the people of the village about eye care. I tell them about the different symptoms they should look out for and how to care for their eyes to prevent impairment.*

Suneela, 30  
Field Worker

Besides going door to door, our Vision Guardians or field workers at the grassroots level conduct community screening programs. Announced in neighbouring villages well in time for people to be able to attend, the program is generally held in a school, community centre or any conveniently located facility. For most people, this is their first brush with eyecare.

The first time we reach – really reach – or actually connect with a patient is a luminous moment. It means we have jumped the hurdles of geography, prejudices and fears, and nullified social and economic barriers.

Suneela joined us in March 2011. Ever since she was a child, it was her dream to become a doctor. Giving up formal education owing to financial strains and an early marriage thereafter meant her dream remained just that - a dream. But with her two toddlers in school, Suneela trained to become a field worker with LVPEI. She has led community screening programs across 20 villages.



Community screening at Yellandu Mandal, Andhra Pradesh.





We have always believed that the will  
to get cured is half the battle won.



A variety of people from the most remote villages attend the program. Over the years, the numbers have grown - more and more people are coming out to get checked. People who have never been to an eye clinic are travelling across villages, overcoming their anxiety and apathy towards healthcare. When people are motivated to come out on their own and take an interest in their health, we know we are doing something right.



## THE FIRST-TIME EYE CLINIC



*I was trained for over a year to understand how to screen and refer the patients who come to me. I learned the 3 R's of LVPEI: Refraction, Recognising Blinding Conditions and Referring Appropriately.*

M. Bhavani Prasad, 22  
Vision Technician  
Amruthaluru Vison Centre



This Vision Centre, a renovated ancestral home, is the first point of contact the patient has with actual medical procedures. Here the people come to us, after the Vision Guardian has been to them. This is our 88th centre, and was inaugurated in March 2012.





Here, the Vision Technician is conducting an eye examination at a Vision Centre in Bijanapally, Mahbubnagar district. This includes testing for vision, correcting the vision defect and examining the eyes for any signs of possible problems.



# CROSSING THE GODAVARI

*Vedamlaa ghoshinche godaavari  
amara dhamanlaa sobhille raajamahendri  
vedamlaa ghoshinche godaavari*

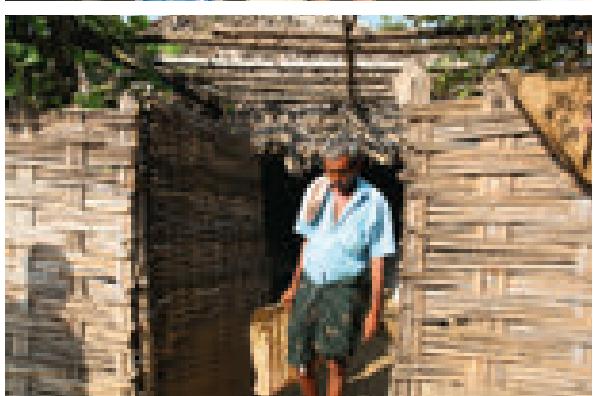
*The Godavari rumbles on  
Echoing the chants of the Vedas;  
Rajahmundry bedecked beckons,  
Like the eternally divine abode*





This is Rudramkota. On one of her several sojourns across the Godavari, our field worker, Aruna, meets Moorthy, a septuagenarian who has what he calls a 'little eye problem'. He lives with his wife, son and daughter-in-law who are cotton farmers. Moorthy doesn't work anymore and he doesn't say why. Moorthy goes about his day, helping around the house whenever he can. Aruna assesses Moorthy's vision. He has difficulty reading even at less than the average reading distance.

**On this side of the river, there are no eye clinics.**



*I have two daughters back home in Tekullapally. As I float across the river on my way to work in a wooden dinghy I sometimes wonder if one of them will become an eye doctor one day.*

Aruna, 31  
Field Worker

*up and down the river wide  
I ferry hope*







Aruna refers Moorthy to the Navbharat Eye Centre at Paloncha, on the other side of the river. Moorthy and his friend walk to take the ferry across.



*The journey to see...*

**People 50 years and older represent 65% and 82% of the visually impaired and blind, respectively.**

World Health Organization  
Vision 2020: The Right to Sight

*Across the river from Rudramkota village...*





*On foot, by bus, Moorthy treks his way to Paloncha.  
The yearning to see knows no bounds.*



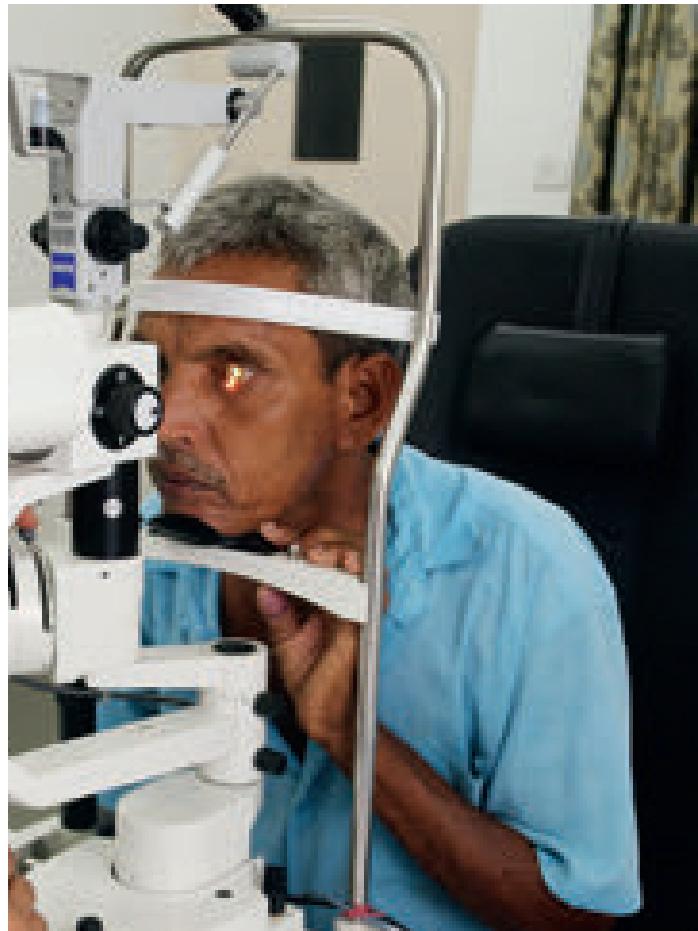


It is Moorthy's first visit to an eye hospital. At the Paloncha Secondary Centre an attendant finds him immediately – she registers him at the reception and tells him when they are ready to examine him. Moorthy's initial nervousness is gone.

The ophthalmologist explains to him that he has a well-developed cataract in both eyes. He is scheduled for surgery.



Very soon, after a successful surgery, Moorthy is back in his village and somehow, it looks more beautiful than he remembered.





*When our first rural centre was set up in Mudhol, a tiny village in Adilabad district, I wondered at first who would access the centre considering I could not spot a soul for more than a mile. Soon however I heard that people were coming not just from the villages of Adilabad but across the border from Maharashtra as well.*

Dr. G CHANDRA SEKHAR



A VAN RIDE

**It was calculated that, of the estimated 45 million blind people in the year 2000, 1 million per year would have their sight restored through medical or surgical interventions, while 6 million would die blind each year.**

World Health Organization  
Vision 2020: The Right to Sight



Access. More often than not, the lack of access is what keeps people in the dark. They deal with their dwindling vision like they do all the symptoms of old age – with quiet desperation. Sometimes, it is not enough to create well-equipped eye care centres with free service for the underprivileged. You need to help them get there.

Once screened by our field workers, many make the journey to their nearest Primary Centre in our van.



*I help people reach the Secondary Care Service Centre, which is sometimes far from their home. I accompany them in our van, which goes from village to village to patients' homes. Since it is their first time, many of them are nervous. I am with them all the time, even if they need to come back for further treatment. I reassure their family, help them cope.*



K.Navya, 23  
Vison Health Organiser  
Thoodukurthy





VISION FOR THE YOUNG



*without moving, my eyes travel the world*



**1.4 million - 13 లక్షల మార్గి  
children in the కని బ్లిన్డ్, దు  
world are blind. రంతులు వి  
40% of childhood భ్యు - అక్కన రమా  
blindness is  
avoidable.**

World Health Organization  
Vision 2020: The Right to Sight



భూయకవితి

గ్రంథమై

జీవితము

ఎన్ వెళ్లపుస్తంఖము

పుస్తము ప్రమాణము





One day, we hope to bring an end to the looming darkness of eye disease. This hope grows ten-fold when it comes to children.

The Nimmagadda Prasad-LVPEI Children's Eye Health Initiative works to prevent childhood blindness, with a handhold in every area, from building infrastructure to providing spectacles, treatment and training. This keeps the spark of our hopes burning: that Andhra Pradesh will be rid of blindness by 2020. Other training programs in collaboration with international entities like ORBIS International, Sightsavers and Lions Club International Foundation address the shortage of personnel in pediatric eye diseases, inadequate infrastructure and lack of good anaesthesia and para-ophthalmic support.

The Pediatric Ophthalmology Training Centre aims at eliminating avoidable childhood blindness. Eye doctors face several challenges: there just aren't enough skilled personnel (both medical and administrative) infrastructure, or equipment. In association with the International Agency for Prevention of Blindness [IAPB] and VISION 2020, and ORBIS International, L V Prasad Eye Institute set up the training program to make up for the lack of these, and to train pediatric eye care teams from India and other developing countries. Each team of 6 personnel (ophthalmologist, anaesthetist, optometrist, nurse, counsellor, and an outreach coordinator) empowers

<sup>220</sup> one institution in paediatric ophthalmology.



### SIGHT FOR KIDS PROJECT

The key is this: the quicker we catch the signs of childhood blindness, the faster we can curb the defect and let the child lead a fairly normal life. Supported by the Lions Club International and Johnson & Johnson, the Sight For Kids program has a structured approach to early detection of childhood blindness. LVPEI helps design and execute the program by training teachers through sessions and manuals to identify eye problems in children, screen them and refer them for treatment. Children are treated, given spectacles or rehabilitation, even surgery where required. LVPEI also conducts awareness initiatives in schools.

### CHILD TO CHILD AND CHILD TO FAMILY COMMUNICATION

Kids have an innate ability to be harbingers of change. They are direct and to the point, with a freshness of perspective, all wonderful tools to help spread the message of health among their peers and adults. And so we orientated school children of grades 6–8 from 13 schools in rural Andhra Pradesh to eye health care. Teachers instructed children to refer anyone in their family or community whom they suspected of having eye problems and related disorders to the nearest Vision Centre. Within a week, 1087 children screened 12,956 people, 17% of whom were actually diagnosed with vision defects. Nearly 40% people came to the Vision Centres because of this unique program.



*I know every answer  
my teacher asks  
the blackboard is clear as day!*





Her younger brother's almost literal nose in a book, her mother's squinting to read the paper or her grandfather's slow withdrawal from social life – nothing escapes her watchful eye. "Now she gets after all of us, and if we show any sign of problems, she sends us straight to the centre for a screening", says her grandmother with pride.

Kamala never leaves for school without a blessing from her grandmother. Trained by the eye doctors to spot eyesight problems or diabetic disorders in her family, her confidence soars, and her head is held high.





The village is strong: wisdom from the elders, vitality from young people, all working together towards a goal of better sight. The health workers and doctors are guided by the knowledge and strength of the community in charting the course of the care program. Young boys and girls from the village learn how to screen for low vision, trusted by their elders, admired by their peers. The community listens, learns and acts... and becomes even stronger.

COLLECTIVE VISUALISATIONS







## COMMUNITY INITIATIVES

We realised early on that the community's involvement in any of our programs was imperative – we could not succeed in eradicating eye disease without local volunteers, local inputs and local knowledge and practices. We also needed to up the interactions between our Vision Guardians and the people in order to effect our primary health care plans. So we engineered several community-led pilot projects in order to test how feasible they were in terms of time, cost and success. This helped us then create strategies for larger implementation. We learned that community initiatives, in order to be effective, have to be simple, affordable, sustainable, and essentially, replicable.

In our community programs, we work closely with government and private health services and welfare schemes. We form the link between initiatives and their recipients.

### CAFE and PEEP

For Re 1 a month only – a simple rural eye care fund, CAFE (Community Assisted and Financed Eye care) would provide people in the community the ability to avail eye care services including complete eye examination at a Secondary Eye Centre, cataract surgery with intraocular lens (IOL) and also minor surgeries. With support from Eyesight International (ESI), Canada, it was started in 16 villages of West Godavari district in Andhra Pradesh covering 50,000 people. More than 70% of the population in the villages registered, of which 65% utilised hospital services, with 23,459 outpatients visiting the hospital. A total of 2447 children



between the ages of 6 and 15 were examined. Over 2000 cataract surgeries with IOL were performed.

While the program met an untimely end with the government offering free eye care services, its ability to sustain quality healthcare in economically backward regions is plain to see. Other such programs like PEEP (Providing Eye care through Empowered People) etc work in a similar way, using community participation to allow the people themselves to own the project.

#### VISION GARDENS

While the government has addressed the high incidence of Vitamin A deficiency with the universal Vitamin A prophylaxis program which distributes high dose Vitamin A capsules twice a year, what is required is a more regular dietary approach. Something that would change the way people eat.

The idea of Vision Gardens, which are essentially kitchen gardens in which we monitor produce, was mooted to end Vitamin A deficiency (VAD) as well as other micronutrient deficiencies. The produce from Vision Gardens is dehydrated and crushed into sprinkles, which are natural nutrient supplements. They are a rich source of beta carotene, calcium, iron, and proteins, thus armed to battle micronutrient deficiencies, including VAD and iron deficiency. Four locally available and well accepted plants are selected for cultivation in the Village Garden; these are typically, drumstick leaf, curry leaf, papaya, and sweet potato.

All these plants are hardy, need little space and water to grow, and are easy to cultivate. And they are charged with health. Drumstick leaves and curry leaves, for instance, can contribute to daily dietary requirements of iron, calcium, folic acid, Vitamin A, and Vitamin C. So just two varieties of plants provide multiple nutrients. Similarly, papaya and sweet potato, which can be either consumed fresh or dehydrated for future use, can be promoted as weaning foods.

Farmers are also encouraged to grow these plants through krishi vignana kendras to add to the abundance of produce from Vision Gardens.

#### CLIP

The Community Linked Initiative Project (CLIP) is designed to improve community health, mainly by empowering people to be stakeholders in every stage of the project from planning to delivery. A core goal is to understand and remove inequalities in health access. CLIP was piloted in Ada Village, Jainath Mandal, Adilabad district. After discussions with village authorities, youth groups, government officials and school teachers, a project to create a blindness-free village was started off. A blindness-free village means that any persons with vision problems would have been treated and cured, and those who could not be cured would have undergone rehabilitation.

The CLIP project co-ordinator drew a social map of the village on the ground with the help of the villagers. This helped us understand not only the physical features of the area, but also generated spatially referenced information on health, economic activities, linguistic differences, social hierarchies, religion and more. We could now plan the distribution of healthcare based on how and where people lived and worked, what resources they possessed, and what access they had to roads, drainage systems, schools, drinking-water facilities, etc. This helped us identify the Vision Guardians who would work with us, and make a strategy to improve primary health care in the village. The map exercise established a significant connection between our health workers and the villagers, building up trust and convincing them that we were truly interested in making their lives better.



# The largest number of Vitamin A deficient children live in India (35.3 million)

Johns Hopkins Bloomberg School of Public Health  
Baltimore



Over the years, we have tried to change this statistic. We have always believed that if you fix the cause, there won't be a symptom to treat.

In most rural communities in India, people eat what they grow – it's easy, economical and fresh. That's where the idea of Vision Gardens started. Point the community to a few locally available and well-accepted plants to grow that are rich in a much needed nutrient and including it in their daily diet would be but natural.

# SOURCES OF VITAMIN-A

విటమిన్-ఎ  
కీ ఆదారము

## CURRY LEAVES

Murraya Koenigii

### Nutritional value per 100g

Beta carotene : 7,110 micrograms  
Calcium : 830 mg  
Iron : 0.93 mg



కరివేపాకు

## CARROT

Daucus Carota  
Sativus

### Nutritional value per 100g

Beta carotene :  
8285 mcg  
Vitamin : 16706 IU

## PAPAYA

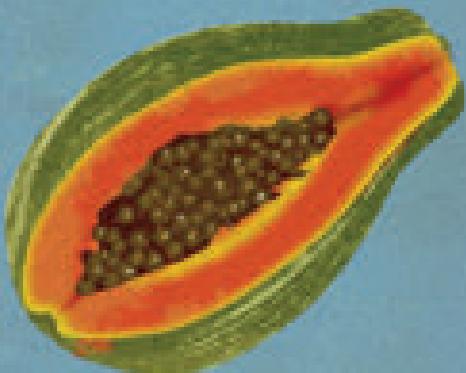
Carica Papaya

### Nutritional value per 100g

Beta carotene : 880  
Calcium : 17 mg  
Iron : 0.5 mg



ఎర్రముల్లంగి



వరంగి

## SWEET POTATO

Ipomoea Batatas

### Nutritional value per 100g

Beta carotene :  
1,990 micrograms  
Calcium : 46 mg  
Iron : 0.21 mg



చిలగడ దుంప

## DRUMSTICK LEAVES

Moringa Oleifera

### Nutritional value per 100g

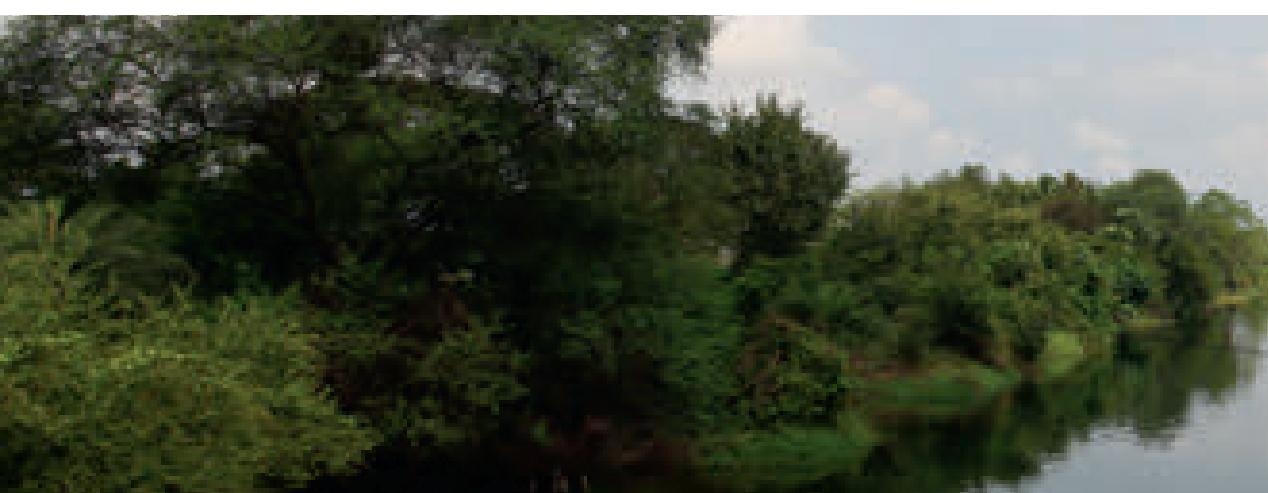
Beta carotene :  
19,690 micrograms  
Calcium : 440 mg  
Iron : 0.85 mg



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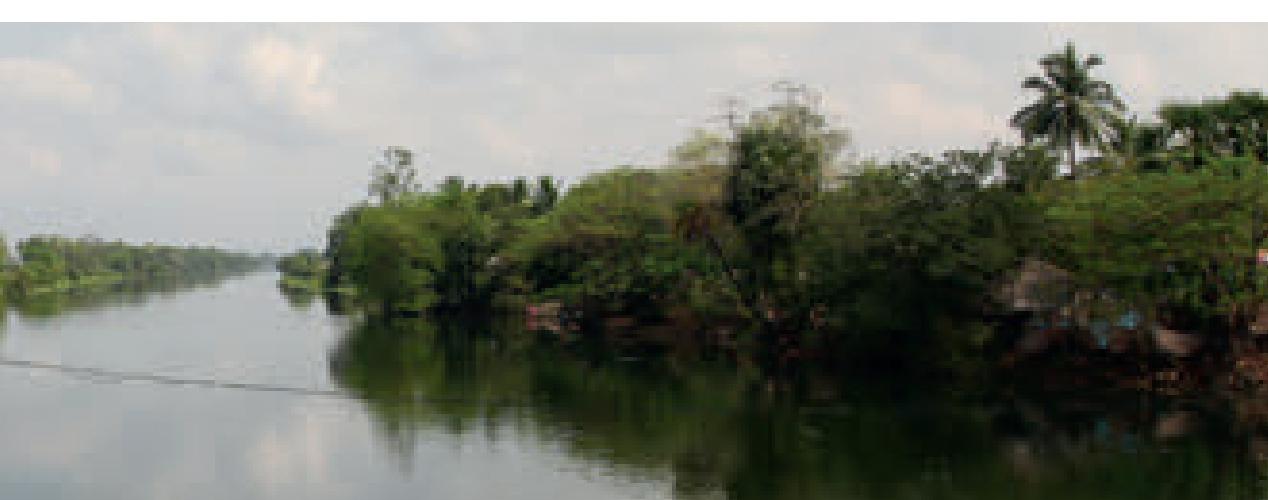
*Lush, the land*

*Along the river wide*



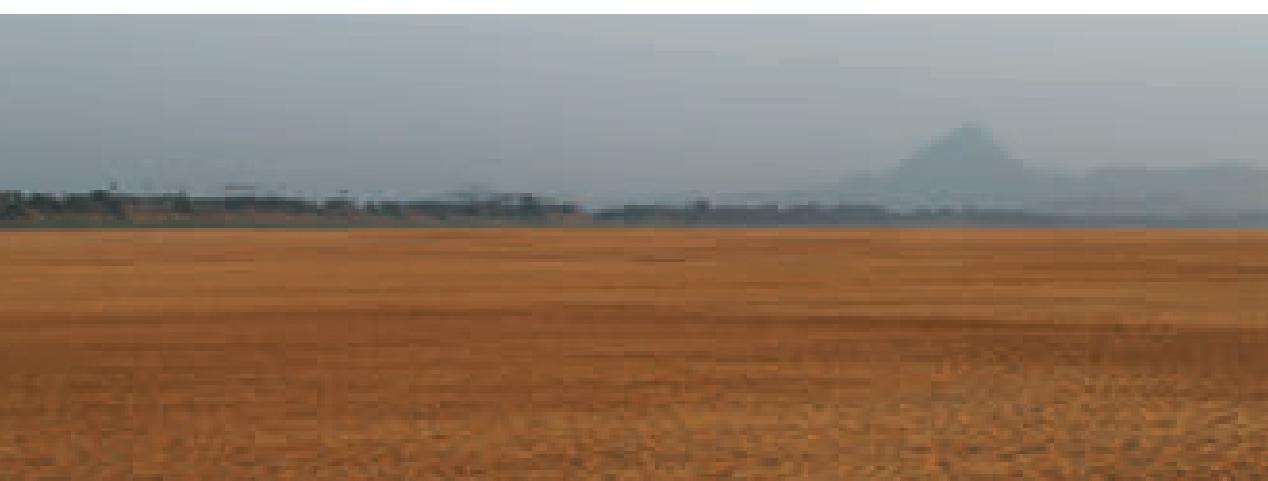
*Rich soils nourish thousands*

*Yet, never have they had their eyes seen*



*Parched earth crackles in the arid air*

*While the sea laps endless sands*



*Deeper within, palm trees sway,*

*Their heads bowing to the dusty wind*



## A SOCIAL MAP

All of Ada, a little village in Jainath Mandal, Adilabad district, has gathered near the big banyan tree. They are curious about us, men and women with charts and torches. Most of them have never been for an eye check up. Chalk in hand, they begin to draw their village, every home, school and field. "We drew in the roads and hills of our land, and showed them the different places that different communities and castes fetch their water," says T. Ramu. The doctors in our group explain that this knowledge will lead towards a plan to make the village blindness-free. To help the community, we understood long ago, you first have to involve the community.



## SEEING THE LIGHT

A photograph capturing a dramatic sunrise or sunset over a vast ocean. The sky is filled with heavy, dark clouds, through which bright, golden-yellow light filters, creating a powerful contrast. In the lower third of the image, a person stands in the shallow water of the ocean, facing away from the viewer towards the horizon. The water is textured with small waves and reflects the warm colors of the sky. In the far distance, a few small boats are visible on the horizon.

*at the crack of dawn, the fishermen awake  
their spinning nets swirl into the ocean deep  
as warp and weft embrace to the rhythm of the loom  
the luminous morn stirs from sleep*





**Dotted with villages of fisherfolk and weavers,  
Prakasam is LVPEI's model district of eye care. True  
to its name, it lights the way forward for us and our  
vision for towns and villages across India.**

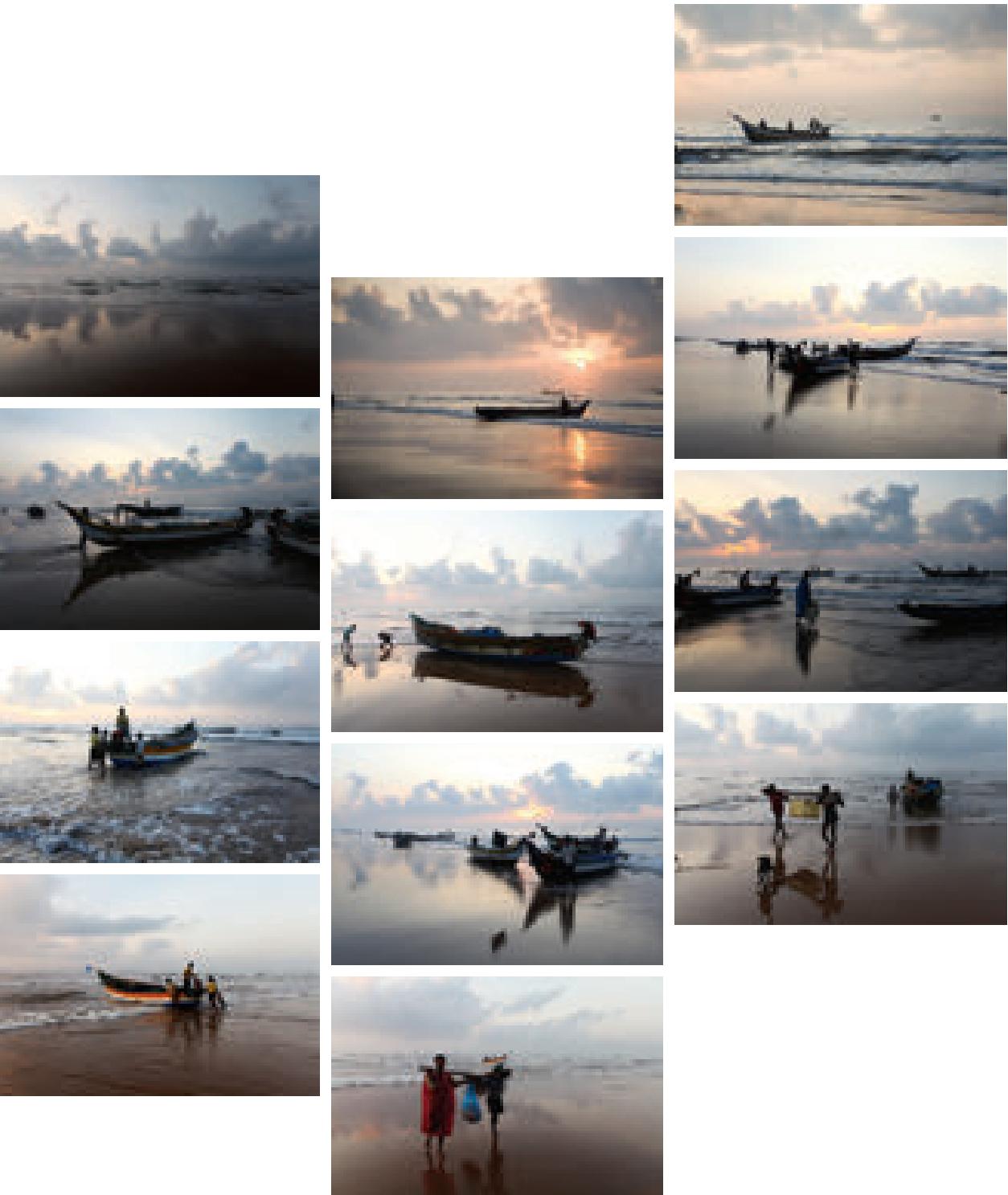
# THE CURIOUS CASE OF PRAKASAM DISTRICT

What happens when international NGOs, philanthropists and the government work together for a common cause? The people of Prakasam district will tell you that their lives improve, their access to eye health increases by leaps and bounds, and the embers under the bushel become a big flame, lighting the way forward.

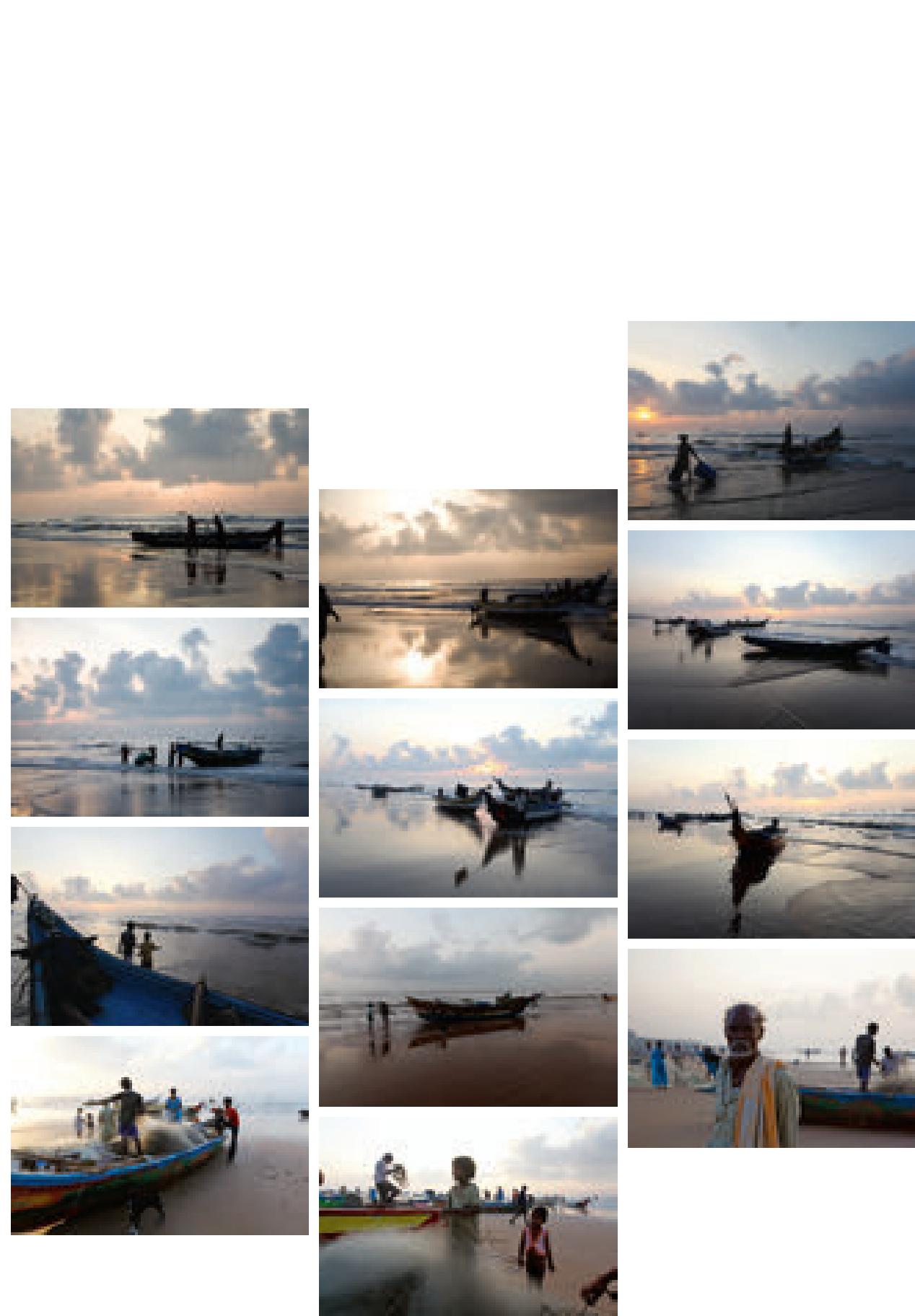
The LVPEI Pyramid of Health is nowhere more evident than in this little region of Andhra Pradesh. Its people now have 3 Secondary Service Centres and 30 Vision Centres for primary care. There is a community eye screening and CBR (Community Based Rehabilitation) program, a children's eye health initiative and a diabetes control program. The numbers tell us that every single person – man, woman and child in Prakasam district has full access to excellent eye care!

The fishing and weaving communities of Prakasam have lived for generations in the same way, following ancient traditions and ways of life and livelihood that are unique to them. LVPEI did RAVI (Rapid Assessment of Visual Impairment) studies in 2010-2011 on this collection of little hamlets stretching across the coast of Prakasam district in Andhra Pradesh. We concluded that a majority of people who had vision problems (refractive errors and cataract possibly due to high exposure to sunlight) did not have access to treatment, not even simple, low cost spectacles. We also found that it was the older people who had more of a propensity towards eye disease. We used the information gathered in this study to plan our service delivery model for the area, a model that would be accessible, affordable and acceptable to the people.

# FISHERMEN'S TALES



*as dawn breaks, they call it a day  
a hundred boats, return ashore  
the smell of fish colours the air*



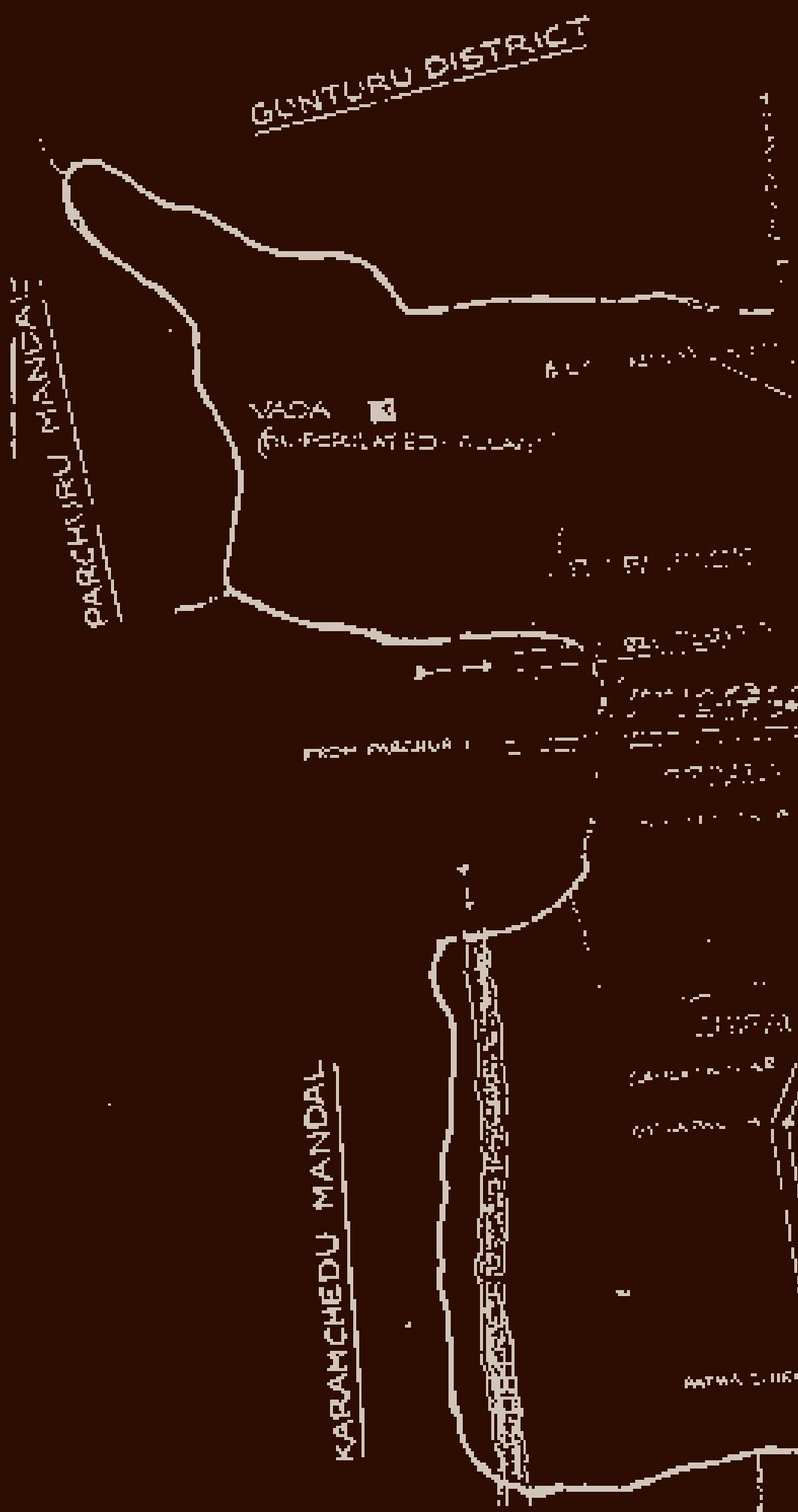


It's 6 o'clock in the morning. Families have gathered on a golden beach in Eppurupalem coast along Prakasam district. Little children, wrinkled women, strapping young men, their wives. The sea laps the shore, bringing fish-laden boats. They are pulling the boat in, cleaning the nets, gathering the catch, selling the fish.

The fisherfolk of Prakasam show a high prevalence of cataract and refractive errors. But unlike their peers in the interiors, they have no Vitamin A deficiency, thanks to their coastal diet. They were the subject of the first paper on eye health of a fishing community in a developing country.



# CHIRALA MANDAL



VILLAGE MAP

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# THE RHYTHM OF LOOMS





*A few kilometers away from the sea, a village awakens to the rhythm of a loom. Colourful yarn stretches in deep, straight lines. Weaving is part of an ancient memory and a way of life in these parts.*



Everyone weaves here - Sathyanarayana (46), his wife Seeta Ramamma, his mother, her father. It is a way of life passed on from generation to generation. But the next generation is looking ahead and looking elsewhere. While Sathyanarayana's daughter is training to be a Chartered Accountant in Guntur, his son is an apprentice goldsmith.

"I can feel the yarn," says his mother Mrs. Siva Samrajam, "I have been weaving for 50 years." But, after a lot of coaxing, she now wears spectacles.



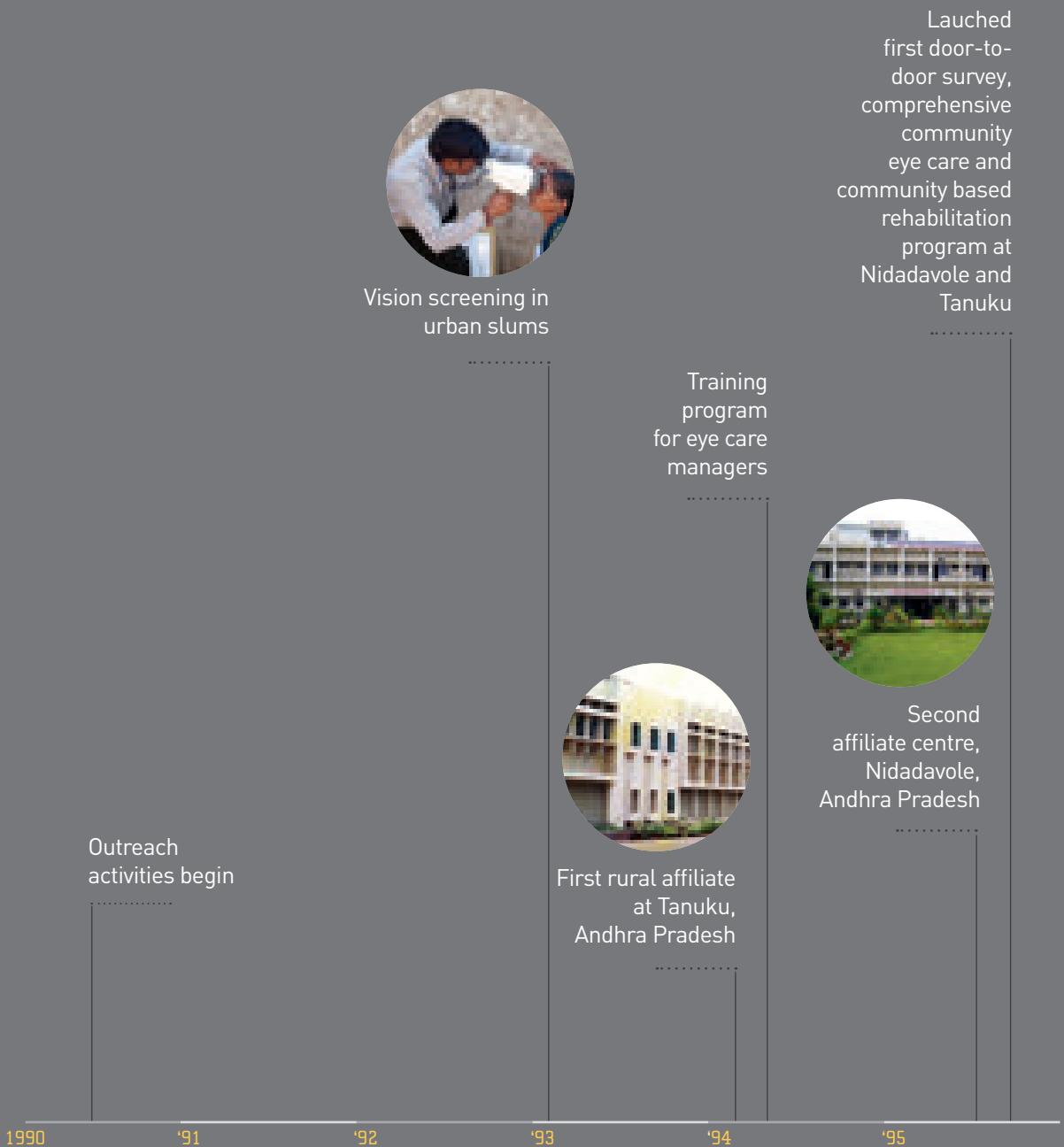


With access no longer a hurdle, Prakasam district shines out. But LVPEI has miles to go... we must battle fear and superstition, rigid beliefs and social mores that do not allow people to accept the access and transform their lives. That is our next challenge.



## SPOTLIGHT

### COMMUNITY EYE CARE





International Centre  
for Advancement  
of Rural Eye Care  
(ICARE) established to  
coordinate public health  
ophthalmology projects/  
service delivery



First rural  
satellite  
centre set up  
at Mudhol  
Andhra  
Pradesh

Refractive  
Errors Study  
in Children  
(RESC)

Launch of  
Diploma in  
Community  
Eye Health  
course, the  
first of its kind  
in India

'96

'97

'98

'99

2000

'01

Andhra Pradesh Eye Disease Study (APEDS)

Community Assisted & Financed  
Eye care (CAFE)



Vision Centre model launched with first vision centre at Chagallu village in West Godavari district

Government of India adopts the Pyramid as a model of eye care service delivery in its budget for 11th Five Year Plan 2007-2012

LVPEI's approach to sustainable eye care in developing countries adopted as a model by WHO



Nimmagadda LVPEI Children's Eye Health Initiative, supported by Nimmagadda Foundation

A fully functional Village Vision Complex established, with a Secondary Care Centre at Thoodukurthy, linked to ten Vision Centres



Sight for Kids program launched ONGOING

LVPEI is instrumental in establishing the first state program in the world- Andhra Pradesh Right to Sight Society

2002

'03

'04

'05

'06

'07

Community Assisted & Financed Eye care (CAFE)

Child to Child & Child to Family programs initiated



LVPEI's Vision Centre approach adapted by the Australian Government in its efforts to develop primary eye care in the South East Asia/Western Pacific region

Sight to Resight Vision Health Guardian project started

Ramachandra Pararajasegaram Community Eye Care Education Centre and Allen Foster Community Eye Health Research Centre established in ICARE

Sight First, Capacity Development project for management of diabetic eye diseases in Andhra Pradesh

Inaugurated first Electronic Medical Record (EMR) Navbharat Eye Centre (secondary care), Paloncha and at Manguru Vision Centre (primary care)

Official launch of Masters in Community Eye Health course with a collaboration with UNSW, Australia. The first of its kind in India and one of the few such programs globally

Community Linkage for Integration of Primary Health (CLIP) project started

APEDS III being planned

'08

'09

'10

'11

'12

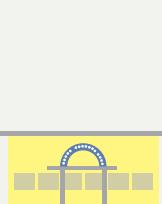
'13

Diabetes prevention & capacity building initiatives for diabetes and diabetic retinopathy/ comprehensive diabetic care programs at Prakasam district, supported by World Diabetes Foundation

Novel rapid assessment methods field tested: Rapid Assessment of Refractive Errors (RARE) & Rapid Assessment of Visual Impairment (RAVI)

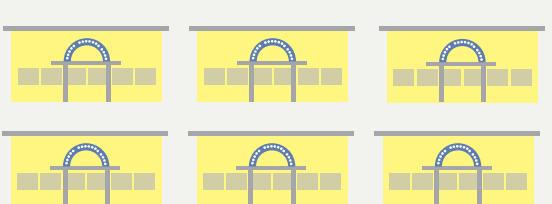
# GETTING A PERSPECTIVE

## COMMUNITY EYE CARE



**734**

Anganwadi screenings



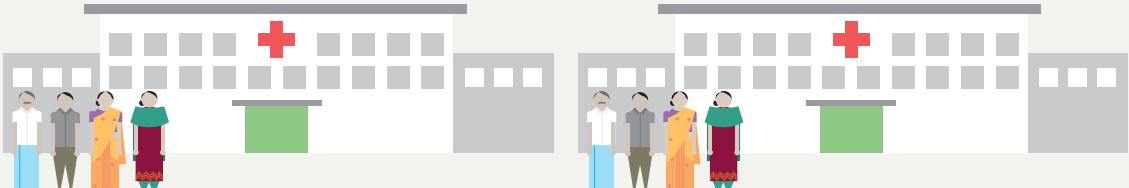
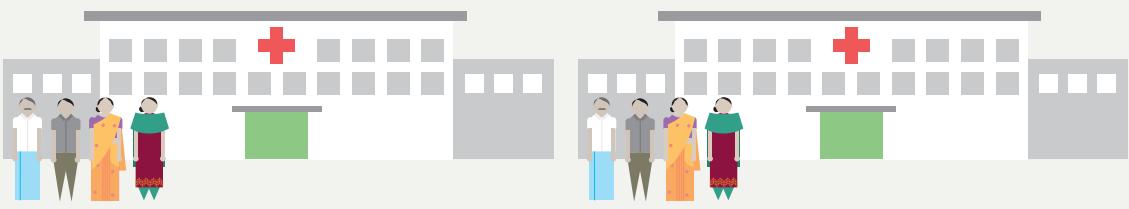
**5,895**

School screening programs



**5,56,271**

Children screened through school and anganwadi programs



**10,44,256**

Non-paying outpatient visits



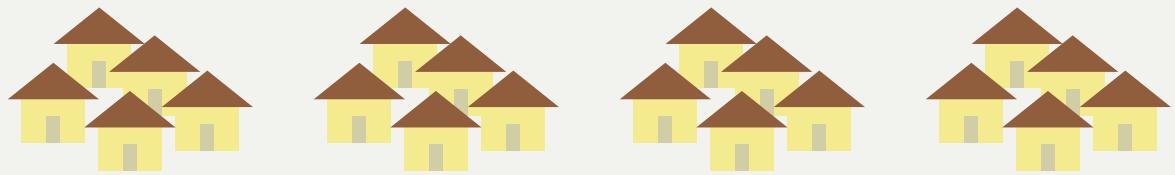
**53,820**

Surgeries for non-paying patients



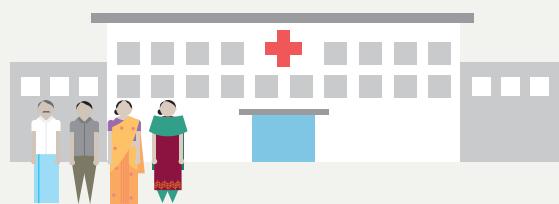
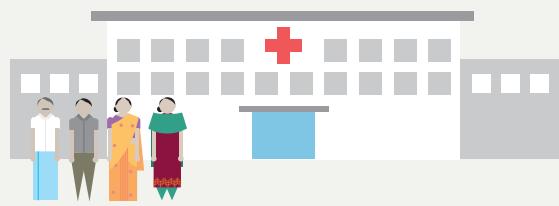
**30,521**

Surgeries for paying patients



**6,085**

Villages covered



**14,68,170**

Outpatient visits at secondary care service centres and primary care vision centres

**4,23,914**

Paying outpatient visits

**87,341**

Surgeries at secondary care service centres

*These figures are cumulative from when we started our outreach activities in 1990 till May 2012; individual programs being initiated along the way.*

## SPOTLIGHT

### COMMUNITY EYE CARE

**APEDS:** A window into eye health in Andhra Pradesh. A first of its kind study across the state, the Andhra Pradesh Eye Disease Study is now in its third cycle. More about this in the Research chapter.

**Chirala:** The largest town in the district of Prakasam, called Small Mumbai because of its very successful handloom industry. This town is also famous for exporting handloom clothes, cashew nuts, fish etc.

**CAFE:** Community Assisted and Financed Eye care: It wasn't just about making eye care accessible, there was a need to make people take responsibility for their vision. A community fund was created where every household contributed Re 1 per month for eye care. While the response was promising with 70% of the population participating and 2000 cataract surgeries being performed in the first year, with the government's introduction of free eye

check ups, the program lost steam.

**Capacity Building Program:** This project aims at strengthening the existing infrastructure and building capacity to help better the quality of life of persons with diabetes in Prakasam district, Andhra Pradesh. It adopts a multidisciplinary approach (including modification in lifestyle, special diabetes oriented care of feet, eyes, etc) and emphasise strong public and private partnerships (among LVPEI, district health administration and private practitioners) with effective community integration and participation within the district. The World Diabetes Foundation is supporting the project for a period of 5 years (2008 to 2013).



**Cycle/  
Auto:**  
Sometimes on two wheels,

at other times on three, our Vision Guardians or field workers go door to door across villages to check the residents' eyes.

**Diabetes:** Supported by the World Diabetes Foundation, LVPEI has made considerable effort in preventing diabetes and related vision impairment. With an alarming increase in the incidence of diabetes in Prakasam, there was a need to change lifestyles, achieved through the Child to Family communication initiative.



**Godavari:** Watering the fertile land of Andhra Pradesh, the 1465 km Godavari is the second longest river in India, after the Ganges.

**Gaaru:** Telugu honorific suffix to names, equivalent to Hindi 'ji' or Japanese 'san'

**ICARE:** International Centre for Advancement

of Rural Eye care, a community outreach program that takes eye care to the grassroots, giving people across small towns and remote villages access to eye health facilities.

**Krishna:** Called Krishnaveni in the local dialect, the Krishna flows 1300 km from Maharashtra, through Andhra Pradesh before it meets the Bay of Bengal.



**Kalamkari:** Inked patterns, woven tales. The Kalamkari craftsmen of Andhra Pradesh translate their vision into beautifully crafted cloth with hand drawn or block printed motifs that captivate the eyes. Fewer and fewer youngsters from traditional weaving families are carrying on this profession today. Requiring great skill, a steady hand and lots of imagination, Kalamkari

can be seen on murals or on saris, shirts etc.

**Kannu:** eye  
**Kanti:** of the eye  
**Kanti Pareeksha**  
**Kendram:** Literally, a centre that tests the eye; Telugu for Vision Centre.



**Mangalgiri:** A town synonymous with crisp cottons and glinting zari, the looms in Mangalgiri spin yards of yarn.

**Namaskaramu:** Namaste, greetings or hello in Telugu.

**Nayana Vanam:** Literally, Vision Garden. The Vision Garden is an innovative concept wherein local communities are provided with sustainable resources to address the nutritional needs of the local population. A Vision Garden aims to provide nutritional security along with food security to the local population. Nodal points for Vision Gardens

include Secondary Centres, houses of health educators of the village (Vision Guardians, aganwadi workers, ASHA workers, ANMs) or in their neighborhoods, schools, panchayat offices, and nutrition centres.

**Outreach:** Going beyond the visible, finding our way into remote villages to help communities find their way out of preventable blindness.

**Prakasam:** A model district of ICARE, with densely networked eye care facilities including 3 Secondary Centres and 30 Vision Centres, making eye care accessible.

**Pyramid:** How eye care reaches people across geographies, at all levels of the urban and rural socio-economic strata of society. A 5-tiered referral system that starts at the grassroots with field workers or Vision Guardians, moving people who need medical care up the pyramid from Primary or Vision Centres in villages to Secondary and Tertiary Centres in

## SPOTLIGHT

### COMMUNITY EYE CARE

towns and cities till the Centre of Excellence in Hyderabad, depending on their individual eye care needs. The LVPEI model of eye care reaching out to communities far and wide, has now been adopted by WHO and the Australian government in its overseas development programs.

5000  
50,000  
500,000  
5,000,000

5000 - Every Vision Guardian takes care of 5000 people, keeping an eye on their visual health.

50,000 - The number of people in a cluster of villages that benefit from one Vision or Primary Centre.

500,000 - A Service or Secondary Centre located at the district level serves 500,000 people with a team of trained ophthalmologists and equipment with surgical capabilities.

5,000,000 - Advanced Tertiary Hospitals and

training centres in cities cater to 5 million people.

50,000,000 - At the top of the pyramid, the Centre of Excellence with state-of-the-art facilities and practitioners serve 50 million people.

**20 cents:** It costs \$10 million to set up a Centre of Excellence, \$1million for a Tertiary Centre, \$ 100,000 for a Secondary Centre and \$10,000 for a Vision Centre. If you think of the number of people they serve, it's only 20 cents per person. A small price to pay!

**Satellite Eye Care Centre:** A rural Secondary Eye Care unit of the LVPEI Pyramid of Eye Health. It serves a population of 500,000 population.

**Sight First 1141:** LVPEI's capacity development project for diabetic eye disease. Blindness due to diabetes is a major eye health concern; almost two-thirds of persons with diabetes have a high potential for vision loss. To address the problem of diabetic retinopathy

in the state of Andhra Pradesh, LVPEI launched a 3-year capacity building program for 18 eye hospitals, with support from Lions Club International.

**The Accompaniment Program:** ICARE's accompaniment program works hand in hand with 'partner eye centres' in under-served areas for four years. By giving their partners strategic and technical assistance ICARE hopes to standardise systems of patient care and hospital management, as well as set up community eye care programs that are effective.



**The Buckingham Canal:** A 421.55 kilometres (261.9 miles) long freshwater navigation canal, running parallel to the Coromandel Coast of South India from

Vijayawada in Andhra Pradesh to Villupuram district in Tamil Nadu.



**Tumbling Es:** Different sized Es pointing up, down, right and left replace the A, B, Cs of the Snellen Chart. Every Vision Technician uses this smart little innovation to assess the visual acuity of those who cannot read while in the field.

(tholu)- toy (bomma)- dance (aata). The puppets enact stories from the epics Ramayana and Mahabharata.

**VVC [Village Vision Complex]:** A rural unit of the LVPEI Eye Health Pyramid. A VVC has three components: Community Eye Care, Primary Eye Care Centres (Vision Centres) and a Secondary Eye Care Centre (Satellite Eye Care Centre). A VVC typically consists of a Secondary Eye Care centre for ten Vision Centres linked to community eye care.



**Tholubommalaata:** Colourful puppets dance to epic voices; the village gathers to watch the show, often behind the curtain. The ancient shadow puppetry of Andhra Pradesh, Tholubommalaata literally means leather

The sighted public's  
fear of blindness is  
often exaggerated  
by the act of closing  
one's eyes and  
thinking, ...

“How can I do

anything?”

Dr. Vijaya K Gothwal

*my little one's  
sparkling smile  
in my sight  
forever*





*my best friend  
these days  
is my bicycle*





*shining bright eyes brimming  
with joy shared  
and with a moment  
of sweet laughter*



4.

# SEEN, UNSEEN

VISION ENHANCEMENT & REHABILITATION

**ENHANCING VISION . 276**

**RECLAIMING SIGHT . 282**

Moderate Visual Impairment . 290 | Severe Visual Impairment . 304

**STARTING SMALL . 314**

Making the Difference: The Children's Program . 322

**DOORSTEP VISION . 332**

*Sightlines . 336*

*Getting a Perspective . 340*

*Spotlight . 342*

*Vijay woke up one day and found that he couldn't see the clock clearly. Soon he noticed traffic signs, the files on his desk, even his wife's face were blurred, almost unrecognisable. The doctor at the health centre in the slum where he lives told him it was irreversible, and that they would treat him to make sure what vision he had did not get worse. When Vijay asked him how he was going to support his family, ride his bicycle, see his daughter married one day, the doctor had no answers. Vijay felt like his life was over.*

At LVPEI, we believe losing vision isn't the end of the road. The chance to see, the dream of a life that is whole, meaningful and productive must be given to every human being. Even if their eyesight is diminishing, hope of a future must never diminish. A future of career success, social interactions, and family life. Every day, we see the lowering of self-esteem in people who have been told their eyes will never be cured. But our rehabilitation program creates scaffolding around our patients so they can continue going to school, get (and keep) a job, have friends, see their loved ones, and get married: in short, avoid social isolation, and improve the quality of their lives. After the training is done, we gently remove the scaffold, and let the individual stand on their own – strong, confident, and looking forward to life. We are determined to empower people whose eyesight cannot be completely restored to, at the very least, resume their lives in a reasonably independent and productive way.

In the medical model, most ophthalmologists lack either the awareness or the facilities to tackle low vision and blindness after diagnosing a patient with irreversible vision loss. They tend to work with stabilising what vision there is, giving the situation a fatalistic bent which is hardly encouraging. Patients have little or no information about how to negotiate the upheavals in their lives caused by the loss of vision. This information is usually doled out by NGOs or educational institutions, totally disconnected from the eye treatment the patient receives.

We think differently: we believe that treatment must be holistic to be truly effective. Right from the start, 25 years ago, the rehabilitation centre was envisioned as integral to our mission. The LVPEI quaternary eye care centre in Hyderabad is the first hospital in India to offer low vision rehabilitation services along with its medical and surgical procedures. In alignment with VISION 2020: The Right to Sight global program, LVPEI has made giant strides in tackling the problem of low vision for people of all age groups, including children.

Rehabilitation is an important step in our patient care services. We work towards empowering visually impaired people with skills so that they can continue to be a contributing force in society and live as normal a life as possible. About half of the average of 50 patients who visit the centre everyday are first visit patients, and

convincing them or their parents (in case of a child) of the possibility of reclaiming a 'normal' life is often the first and the biggest challenge. 'Normal' life means different things to different people. While most adults who come to the center want to be able to read, sign documents or retain employment, senior citizens simply want to know how to get from one place to another. Women from rural areas are interested in being able to manage their home, sorting chaff from grain, cooking etc. Each patient begins with a session to assess and prioritise needs. So, through a combination of learning how to use low vision devices to read newspapers, documents, mobile numbers, watch and enjoy TV, and skills training in mobility such as sighted guides (using the guidance of a person with vision), patients learn to adapt and live fairly normally, which we hope will change the perception of low vision as a dreaded disability.



Trained professionals at the Meera and L B Deshpande Centre for Sight Enhancement and Dr. P R K Prasad Centre for Rehabilitation of the Blind and Visually Impaired work in a highly co-ordinated and involved manner, sometimes over long periods of time, to give people hope that life can go on, and go on well. Over a 100,000 people with visual impairment have been offered a new perspective on life through the low vision rehabilitation program at LVPEI. Patients who have been through the program are able to compete for jobs never before thought possible, in sectors like IT, law, civil services, and teaching. The psychological boost paves the way for real-life achievements.

LVPEI also works with the latest technologies, harnessing new tools like screen readers and reading machines to help patients. Our IT Resource Centre for the Visually Impaired is a bank (the first of its kind in India) where assistive materials like magnifying software, and reading software that converts text to audio, share shelf space with an ever increasing Braille library. Going beyond the centres, people who cannot access the services are assisted through Community-Based Rehabilitation services (CBR). Our audio library has now gone digital!

And in order to pass on our learnings for posterity, we have a long-term fellowship program for special educators and optometrists, and short-term fellowships for optometrists, ophthalmologists, rehabilitation professionals and community workers, to train them in low vision rehabilitation so that they can take the learnings back with them and integrate them into their work.



*if only I could see all parts  
I might be able to be whole*







Simple devices like this portable video magnifier makes reading newsprint much easier for the visually impaired.

Setting a patient back on the road to mainstream living is a sustained task, requiring patience, fortitude and unending optimism, all of which we have in abundance. Our two rehabilitation centres are named after generous supporters who have helped us realise our dream of training people with vision impairment to lead full lives. The Meera and LB Deshpande Centre for Sight Enhancement and the Dr. P R K Prasad Centre for Rehabilitation of the Blind and Visually Impaired provide a wide range of low vision rehabilitation services. "The first step is direct interaction, starting off with assessing his or her vision. The next step is to identify the needs of the person and prioritise them. This is important because these needs vary for different people," says Beula Christy, Head of Vision Rehabilitation at LVPEI's Dr. PRK Prasad Centre for Rehabilitation of the Blind and Visually Impaired.



When Sudha began to get severe blurred vision, her husband brought her to the Tertiary Centre. Here, doctors gave them the diagnosis that neither spectacles, nor intensive treatment, nor surgery could reverse the symptoms. Her visual acuity was recorded as 6/18, which meant she had moderate low vision. The good news was that her sight could be enhanced with low vision devices, and so she was examined at the the Meera and L B Deshpande Centre for Sight Enhancement. Started in 1997, this centre was the first of its kind in the country to offer comprehensive low vision services within an eye hospital. It was also the first to make available state-of-the-art low vision devices, and training programs like low vision awareness programs and short term fellowships. All this, combined with specially trained professionals (low vision specialists – all optometrists) make this a locus for low vision rehabilitative processes worldwide. Once there, Sudha's residual vision was analysed by the low vision specialist. After evaluating Sudha's functional needs and lifestyle, and taking into account the family's income, they prescribed low vision devices including a magnifier to help Sudha read again. "Now I can help my daughter with her homework once more," says Sudha, proudly.

The relatively low cost devices are sourced from manufacturers both within the country and from the world's renowned resource centre - Hong Kong Society for the Blind. This has made them easily accessible for most income groups, and the change they bring is exponential. Whenever possible, we work hand-in-hand with

manufacturers to devise and make inexpensive versions of some of these devices, earlier available only at international rates.

Other patients, who have more severe visual problems than Sudha are referred to the Dr. P R K Prasad Centre for Rehabilitation of the Blind and Visually Impaired to learn how to use more complex tools, and acquire some useful skills. They also have access to counselling which increases their knowledge of their condition, helps them understand how to handle its effect on their lives, and boosts their mental well-being.

Since 1992, this centre has grown to become the spearhead for rehabilitation. It is managed by experts in rehabilitation, and combines high quality medical, social, educational and vocational assistance to help patients learn (or re-learn) how to function normally, as far as possible. The training is wide and deep, and empowers the visually challenged, both adults and children, to improve their quality of living and resume participation in the life of their family and community. New technologies are added every year, broadening the scope of services. An audio library, awareness programs, assistive computer training...the list keeps growing, allowing us to help more and more people to lead better lives.

#### THE PROGRAM

For adults, there is a planned program that encompasses a variety of skills and counselling, both individual and for parents/relatives. Ananth is 21. A fun-loving, cheerful young man, he came to the centre in a state of deep depression: his visual acuity was 3/60, which indicates severe vision loss. Now, after counselling, Ananth and his parents have learned much better how to cope with his condition. They know what to expect: how their lives at home and in the community will change, and that their attitudes must correspondingly alter, too. The optimist in Ananth has risen to the fore again, and he looks forward to his rehabilitation sessions, because he knows that they will eventually help him lead an independent life, finish college, perhaps even get a job in IT.

At the centre, Ananth receives different types of inputs: educational counselling and career counselling and help with college admissions help him think about a brighter future. Learning Braille, and how to use talking books and other learning media and software make him more confident of his communication skills. And of course, living skills training – which teaches him everyday lessons, like how to move around his house and outside using a sighted cane, how to identify money, do simple household chores. For other patients, vocational counselling, guidance and placement, pre-employment preparation, task analysis and training in a selected trade are all part of our initiative to get patients ready for a life in the workforce.



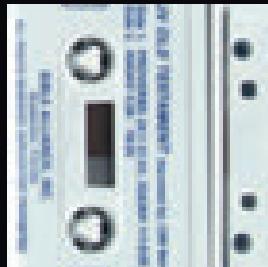
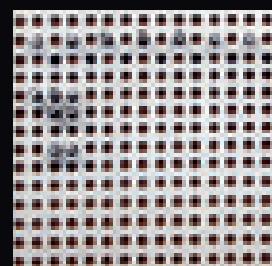
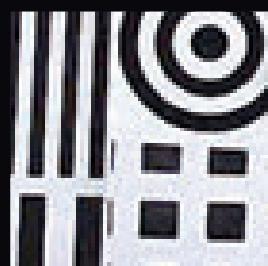
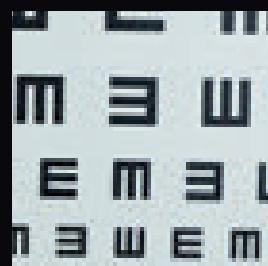
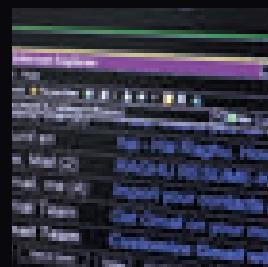
*Her job needs much patience and her demeanour inspires trust.*

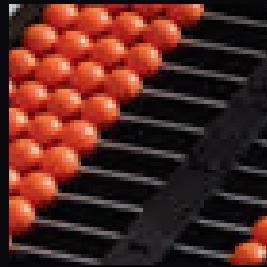
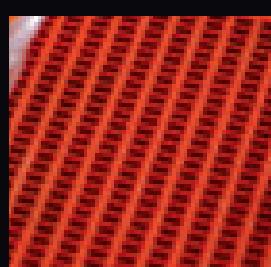
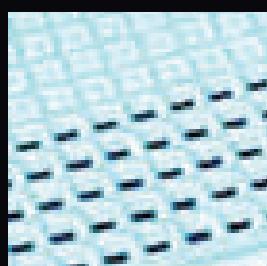
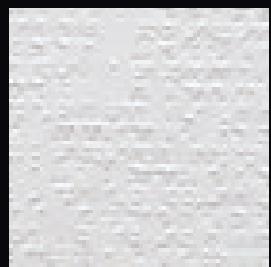
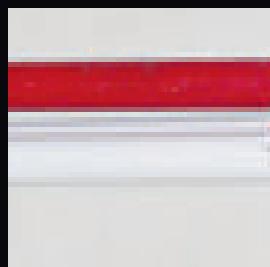
*Lifting the spirits of her clients is her main vocation. Teaching them life skills comes a very close second.*



*I make home visits when required to teach our women clients how to resume life in their homes. I suggest ways to modify the environment in their home for safe navigation, and train them in skills like cooking, cleaning, sewing, ironing, sweeping and more to help them stay independent, and stay useful, just as they were before.*

Mahalakshmi  
Consultant, Rehabilitation





*The tools of hope...*



*When a person can only see at 6 meters  
what a 'normal' sighted person can see at 18  
meters.*

—

6/60

*When a person can only see at 6 meters what a  
'normal' sighted person can see at 60 meters.*



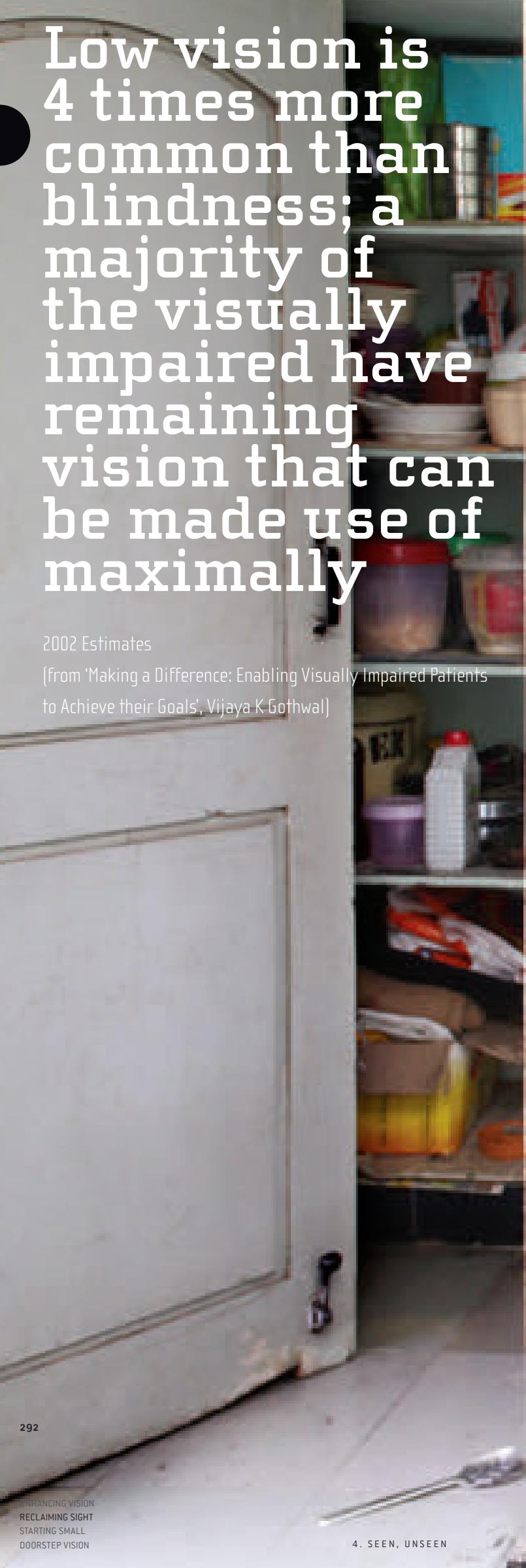
# **MODERATE VISUAL IMPAIRMENT**

**Low vision is defined as visual acuity of less than 6/18 to Perception of Light (PL) after best correction, or a visual field loss of 20 degrees. With rehabilitative training, people with this impairment can have independent, productive, fulfilling lives.**

**Low vision is  
4 times more  
common than  
blindness; a  
majority of  
the visually  
impaired have  
remaining  
vision that can  
be made use of  
maximally**

2002 Estimates

(from 'Making a Difference: Enabling Visually Impaired Patients to Achieve their Goals', Vijaya K Gothwal)





*Her day starts at 6 am.  
Vijayadurga cooks breakfast and  
a packed lunch for her software  
engineer husband and two  
school-going kids.*



*A teacher and mother of two,  
Vijayadurga started losing her  
vision in her 30s. She has been  
with LVPEI ever since and is now  
training to be a specially-abled  
teacher again. Braille, mobility  
and home management are just  
some of the skills Vijayadurga  
has learnt at LVPEI over the last  
5 years.*



*With different sized bindis on  
her stove regulator, she uses  
her tactile senses to ensure she  
doesn't burn dinner!*

I was going blind. I was depressed.  
I thought, what will I do now, how will  
I live? Now I say, I am blind, so what?

Vijayadurga, 35  
Teacher

*Little Braille stickers tell  
coriander from cumin and  
differently numbered bindis, the  
wheat from rice.*



*After a day of chores and  
preparing for her DSC (teacher  
recruitment) exam, she spends  
time with her precious plants.  
Come 8 o'clock, and it's time for  
her favourite TV serial.*



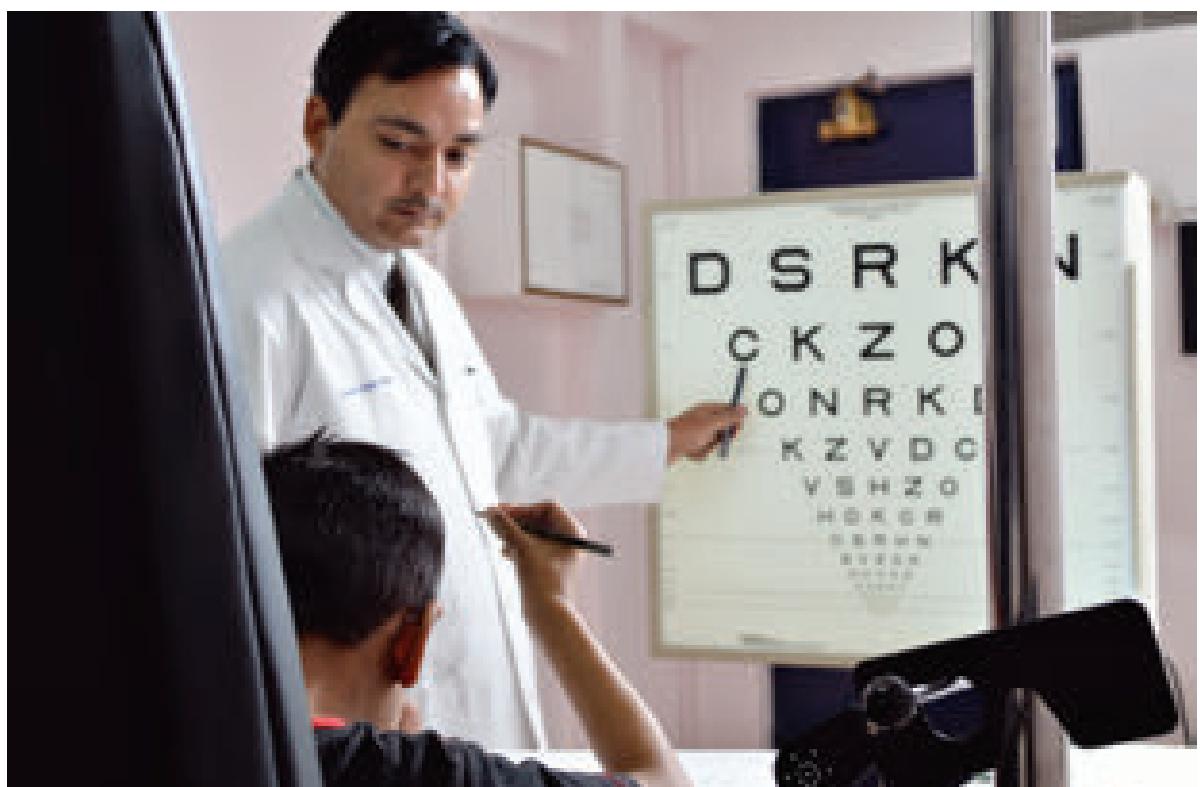
*Vijayadurga goes shopping  
on her own, her money neatly  
categorised according to  
denomination in different  
compartments.*



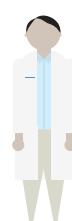
*Her high-contrast chopping  
board helps Vijayadurga use what  
little remains of her eyesight. She  
separates the fruit from the peel  
on it as she hums a song.*

LVPEI is like my mother's house.  
I feel secure here and I learn to  
deal with life.

Imagine how devastating it is for a child to lose out on being a part of its new world. A world of learning, experimenting, of play...



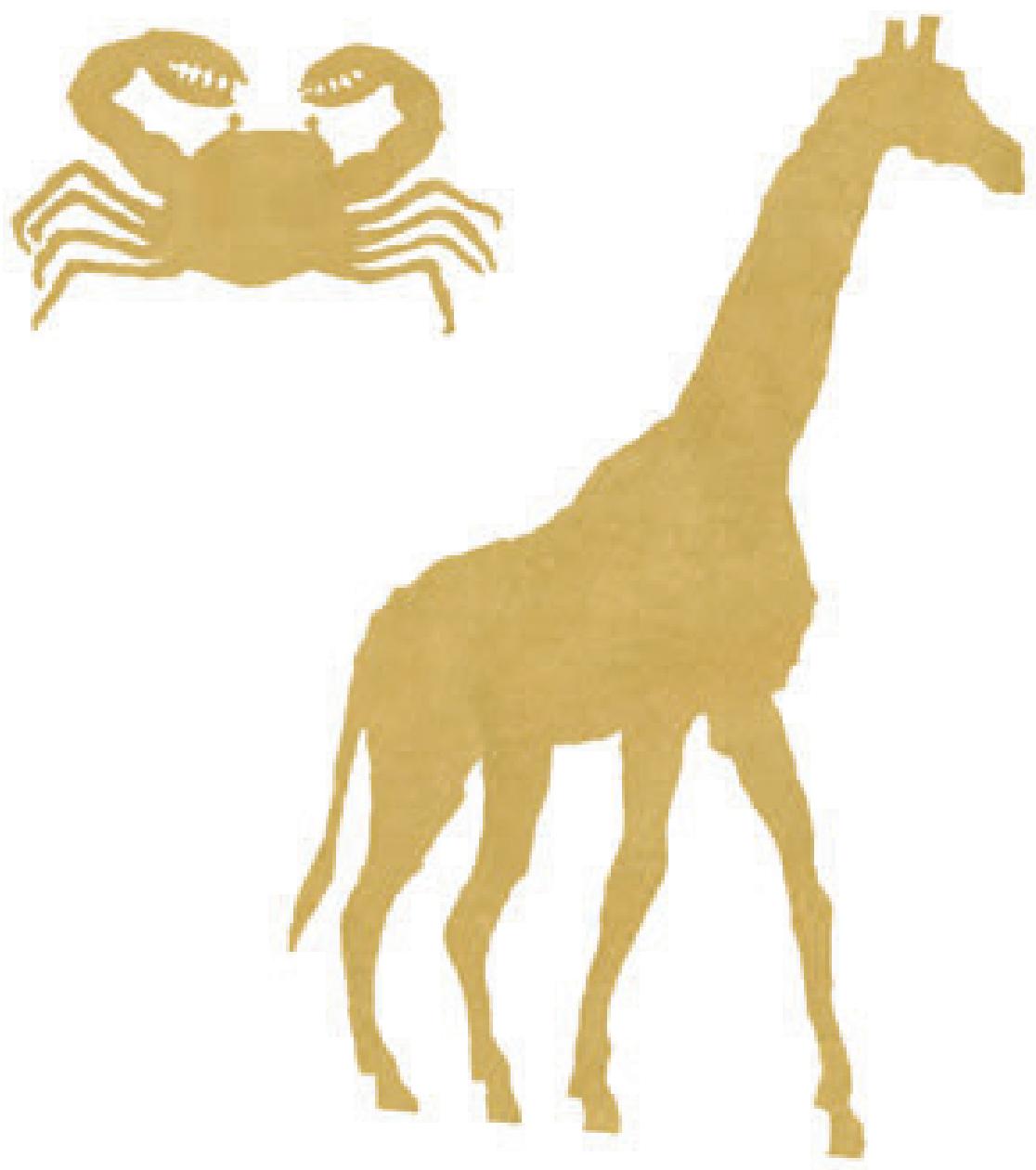
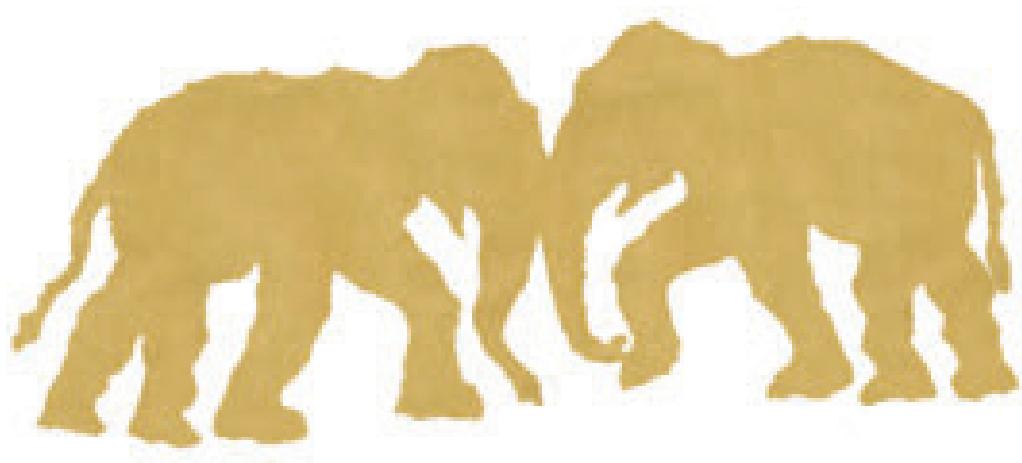
There is a structured examination process that every patient goes through when they come to the Centre for Sight Enhancement. The child here has retinal degeneration and he is being assessed to determine the extent of his residual vision. Every procedure, test and activity is discussed with the patient so that he/she understands what will happen and why it is happening. Distance vision and near vision assessments are done using special charts such as can be seen in the picture – a LogMAR chart that is placed closer to the child so that he can recognise some letters on it. Before coming to us, this child was not shown any letters on a chart when he was examined by doctors and his vision was always recorded as counting fingers (this is not reproducible and is very demoralising) at some distance. The child's parents reported that this was the first time that they saw their child being able to recognise letters on the chart. It made them extremely happy and satisfied with the testing process itself.

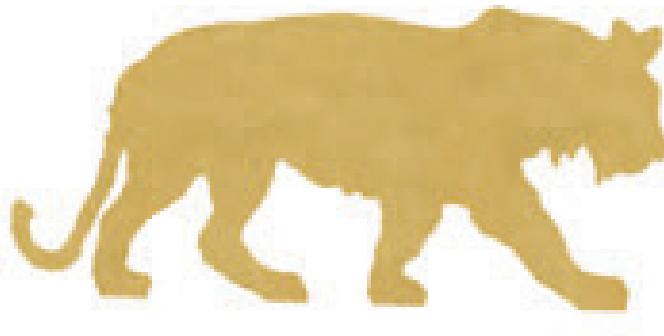


*I love working with children. They respond so well to simple devices and techniques and they look forward to every session. Actually, so do I!*

Deepak K Bagga  
Consultant,  
Meera & L B Deshpande Centre for Sight Enhancement

Then different types of low vision devices are demonstrated which add to the child's enthusiasm. Here the child has problems with distance viewing, for example, watching television, or seeing the blackboard in his classroom clearly. So he is being shown a 2.1x spectacle mounted binocular telescope and a 4x monocular telescope, both of which will enrich his everyday life and help him compete with his peers.





*a shred of imagination,  
a world of beauty*



*My toughest challenge so far was convincing my in laws to give me their beautiful daughter's hand in marriage!*

Mahender Vaishnav, 29  
Facilities Manager, GE



As a five year old, Mahender had an adverse reaction to a prescribed medicine. The little boy began to lose his vision. By the time he came to LVPEI for a check up, it was too late to save his eyes. But that didn't stop him from pursuing his dreams. Confident, with a disarming charm, Mahender is a shining example of how turning blind isn't the end of one's life. It is the beginning of a new one. He studied at Devnar School for the Blind and trained in Braille, Mobility, Assistive Computer Software and ran the gamut of rehabilitative programs at LVPEI.

A talented cricketer, Mahender represented India in the One Day International Cricket Series for the Visually Impaired in August 2010, leading the country to a 3 - 0 series winning score. He hung up his cricketing shoes during college, when his academic life got extremely busy. It was around this time that he met his wife-to-be. Today he works as a Facilities Manager in GE and, whenever he gets the time, he likes to knock around a ball or two.

6/60

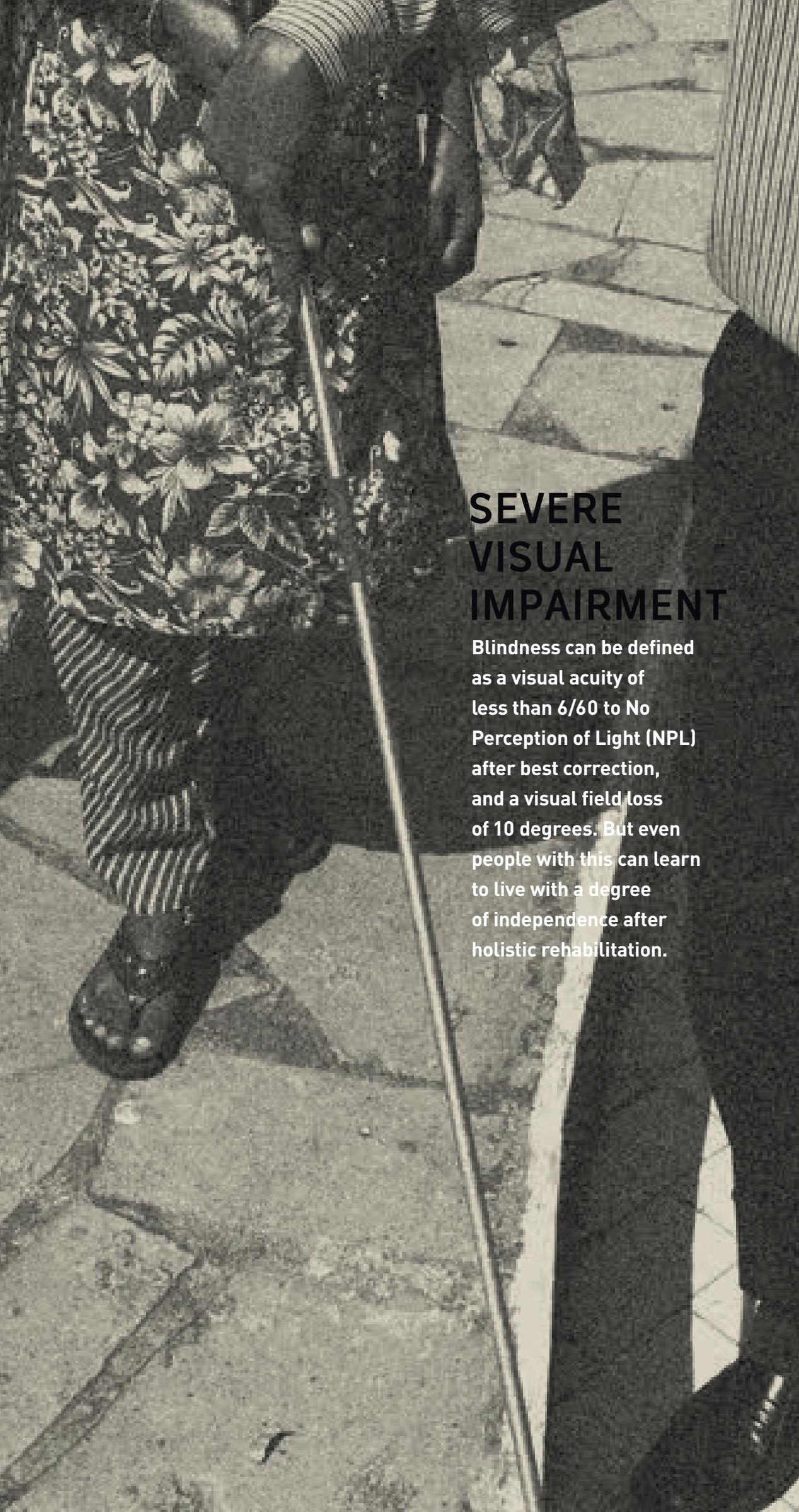
*When a person can only see at six meters  
what a 'normal' sighted person can see at 60  
meters.*

—

6/120

*When a person can only see at six meters what a  
'normal' sighted person can see at 120 meters.*





## **SEVERE VISUAL IMPAIRMENT**

**Blindness can be defined as a visual acuity of less than 6/60 to No Perception of Light (NPL) after best correction, and a visual field loss of 10 degrees. But even people with this can learn to live with a degree of independence after holistic rehabilitation.**



*I know how difficult it must be for a parent to accept their child losing sight. But if the parents or relatives of the patient give support for rehabilitation, I usually see a better result. Mostly one parent stays full time with the patient, bringing them to the centre, giving encouragement during the session, and making them practice what they learn.*

Nagagurappa  
Mobility Instructor





*I have been coming to LVPEI for rehab  
for 15 years... and now I can do so much  
by myself. My hobby is mimicry and  
I love to make people laugh!*

Raju, 17



Afraid in the beginning, Raju has grown into a self-assured young man. He is interested in Chartered Accountancy. He used to be very scared of going out on the road, but with continuous training at LVPEI he moves about independently now. He is very excited about brushing up his spoken English skills, a course offered at LVPEI.



*Aditya, a law student, breaks into song spontaneously and his fingers dance effortlessly on the piano.*

With his hectic law syllabus, he hardly has the time to practice piano. But 17 year old Aditya isn't complaining. What he really wants is to study criminal law and eventually join the IAS.

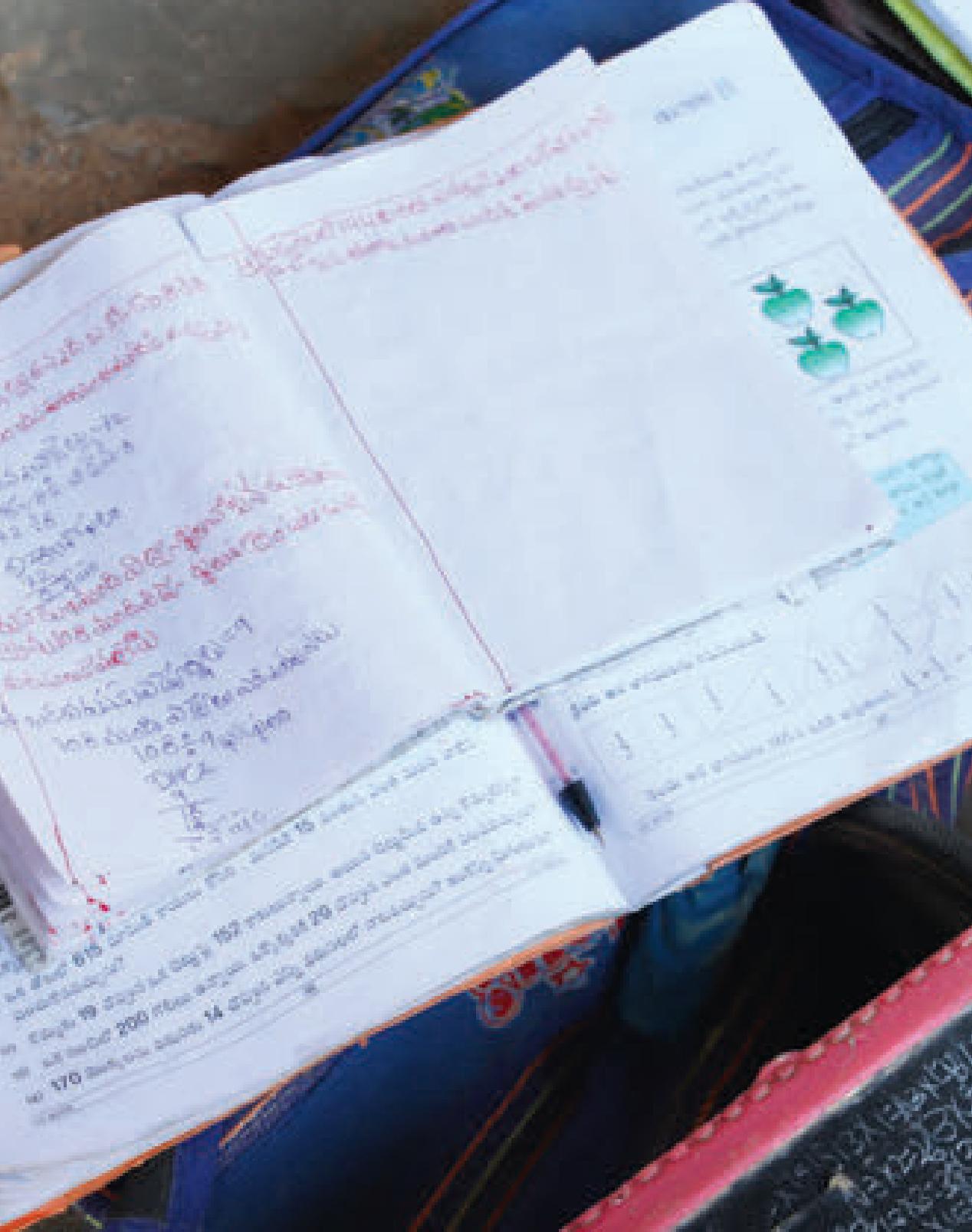
Born to a software engineer father and an advocate mother, Aditya was diagnosed with congenital visual impairment. "I can't grade my relationship with LVPEI, I have been here since childhood and it is a life-long bond."

He took to the piano instinctively, playing nursery rhymes by ear. Encouraged by his father he trained till grade 6 of the Royal School of Music. He hopes to finish the last two grades in the future. But for now his sights are set on finishing law school.



*My professors give me special  
attention. I am the batch  
topper, you see,*

Aditya, 17  
Law Student



*chalk dust  
makes my fingers  
white  
like a hot summer's day*



## STARTING SMALL

### CHILDREN & REHABILITATION

In children, low vision is often hard to detect. Children do not know any different, so cannot articulate that the TV seems fuzzy, or that the light feels too dim. Or, more often, what is merely a seeing issue is taken to mean that the child is not very bright, or is inattentive in class. Parents therefore need to watch closely for symptoms and take their child to a doctor as soon as they spot any signs of visual impairment.

The question most often in the hearts and minds of parents of children with low vision is: will my child always be dependent on someone? Fortunately, children are so adaptable that low vision rehabilitation works extremely well for them, giving them a shot at being at least partially independent. At LVPEI, we have a special facility where we offer individualised services to children with visual impairment and additional disabilities (before they are 15 years old). Sometimes the visual impairment is small, yet its impact is huge, depleting the confidence and capability of the child. The children's program is inherently constructed to allow interactions with the child's parents, friends and school, and finding solutions, sometimes as simple as changing the student's seat so she is closer to the blackboard.



The program assists in the rehabilitation of the child from several different angles. Besides counselling parents on how to deal with their child's condition on an emotional and practical level, we help them decide whether the child should be in a regular, inclusive school or a special school, and what is the mode of education the child can handle. We also facilitate admission of the child into school. Naturally, our goal is that all children should eventually be integrated into regular schools. We help parents set up a home environment that is friendly to their child's low vision, including proper lighting.

Children learn Braille and some learn to read with books with large print. They listen to stories from talking books that delight their imaginations. Our extensive Children's Library stocks all these and more. They do Math on an abacus, and assistive

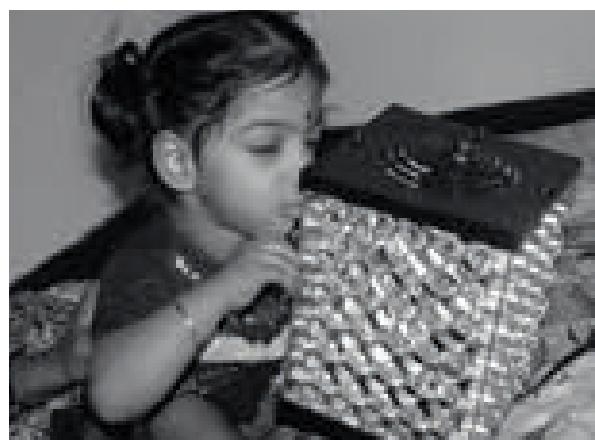
learning software supplements their school lessons. Optical low vision devices like magnifiers and telescopes make classroom interaction easier. They learn how to be independently mobile using canes. We teach them how to identify currency, help with simple household chores, even how to groom themselves. Children with multiple handicaps usually go through 4 hour sessions which involve visual stimulation, speech therapy, physiotherapy, special education and group therapy. Apart from the group therapy sessions, all sessions are one on one. Consultations with doctors and therapists are part of the program.

#### MAKING A DIFFERENCE, ASAP

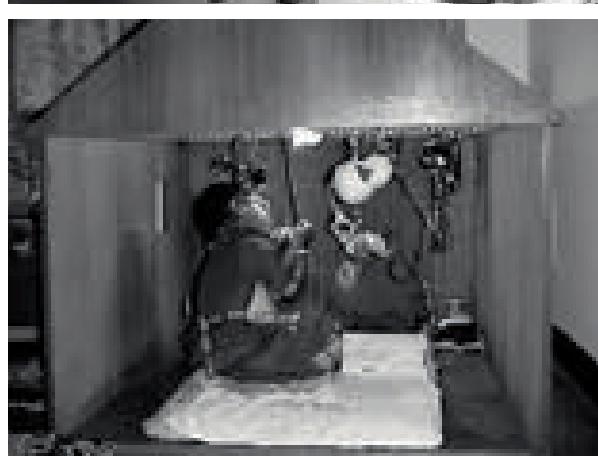
The Early Intervention Program is for children between birth and 5 years of age who are at risk because of developmental issues, and suggests remedial and preventive tactics. It combines guiding parents' involvement in the development of their children, and assessment and training for the infant. "In the case of children, especially those under 5 years of age, the process is different. Children with visual impairment in this age group lack imitation skills, so they need to be given stimuli and training to achieve normal developmental milestones. We have had cases of 3 year old infants not being able to swallow or bite," says Beula Christy. This program has been so successful that it has garnered interest from all quarters in India and globally; as have our efforts at keeping the program constantly evolving, using a model of sustained research and constantly developing new techniques.

Along with the features of the adult program, well researched, age-appropriate training and counselling makes the children's program very effective. The children and their parents know that they are welcome anytime for follow ups. Tie-ups with centers across India help reach outstation patients. Some parents choose not to be involved - in these cases our network of volunteers steps in to create the infrastructure and support every child's needs, including raising funds and organising recreational activities. The framework of the program rests on the principle that the sooner a child begins the process of rehabilitation, the better are its chances of entering mainstream school and getting on with its lives.

"The reward," says Beula, "is making a difference to their lives."



**In India, approximately 0.25 million of the blind are children under 16 years of age and another 1 million children have low vision.**







## I love that I can cycle to school now on my new mountain bike.

Dmitri Paul, 17  
Student

Seeing Dmitri zipping around on his bicycle, you'd never be able to tell that this hip, mature 17 year old has had low vision since he was 4. He shyly tells us about his favourite subjects at school (Math and Physics). He waxes eloquent about cars. He collects car models, reads everything he can lay his hands on about cars, and is obsessed with F1.

It has not always been this easy for Dmitri to achieve his dreams, or even to be like any other boy his age. He cannot read distant things - blackboards, posters, road signage. He had to give up playing cricket, which he loved. He is a champion low vision device user, though! In class he whips out his telescope to read details from the board and the electronic portable video magnifier for reading his text. At home, he prefers to use the dome magnifier (which looks just like a paper weight!) for reading. While cycling, his glasses do the job. For over a decade, he has been coming to LVPEI from Kolkata for check ups and sessions enquiring about newer low vision devices to meet his changing academic demands. Two years ago, his parents decided to move to Hyderabad so he could be closer to the centre. Now check ups are usually once a year.

Dmitri has his future carefully mapped out. Once he graduates from school, he is going to apply to an engineering college. And, he is going to learn to drive.



*we play,  
yet we learn,  
we read  
through the voices of our friends  
we count  
with colourful beads  
and, on ourselves.  
we sing,  
and our songs are of freedom  
we laugh,  
because we can see  
the light  
of the future.*



# MAKING THE DIFFERENCE

THE CHILDREN'S PROGRAM

Optimising  
residual vision

## Awareness of objects

Vision stimulation  
Using electronic  
aids

## Proper lighting

Follow ups Counselling for  
the multi-handicapped  
Residual-vision friendly environments

## Demystifying assistive software

Explaining benefits  
& allowances

Children's Library

## Consultations with therapists and doctors

Training parents  
Counselling  
parents

Choosing  
the right  
education mode

Helping get  
school admission  
**Learning Braille**

Talking books

**Identifying money**

Using the abacus Educational  
and optical devices

**Living skills  
training**

Mobility training  
Using a long cane

**Large print**

**Determining  
usable sight**

Visual skills  
training

Wearing dark  
glasses





*She studies in Class VII at a mainstream school.*

*She was born blind.*

We can see great improvement in Kyathi, she copes with her studies almost as well as her peers and relates to them well. We are now better equipped to help her.

Kyathi's Father





*Besides using formal aids for Mathematics and Braille for writing, Kyathi uses a number of adaptive tools innovated by her parents.*

Kyathi and her parents have been a part of LVPEI's rehabilitation programme for many years. Her father is a teacher while her mother gave up her teaching job to take care of her. But Kyathi is like any other child now - she goes to school, does her homework, takes care of her personal needs, loves to play tabla and escapes chores whenever she can! When she brings photocopied notes from school, her mother helps convert them into Braille. Together they use threading and labelling to read maps and pictures. Kyathi likes Math, English and Sanskrit. She's also learning German.

Kyathi's mother learnt Braille, tactile and computer assistive software at LVPEI. The entire family attended rehabilitative counselling, helping create a conducive and supportive environment for Kyathi to grow and excel in her pursuits. Like her parents, Kyathi wants to become a teacher when she grows up.



*sorting the chaff  
from the grain  
is easy  
again*





*Every single day, he braves the searing heat of the Andhra sun to walk from door-to-door.*

*Twice a day, he arrives at his clients' homes like a messenger of hope.*

*In the village, most people, especially the older people, are scared or superstitious about using the rehabilitative aids or optical devices like telescopes and magnifiers that we supply. So, with infinite patience, he works with them in the old ways: mobility, home chores, using a sighted person as a guide...he helps them learn all these.*



*The simple act of being able to do simple chores and have a vocational skill, empowers people so much.*

Guru  
Field Worker,  
Community Based Rehabilitation

## DOORSTEP VISION

### COMMUNITY BASED REHABILITATION

If the patient cannot come for rehabilitation, we will take it to him or her. Moving the philosophy of LVPEI forward, we extend our rehabilitation services into the community, creating a program conducted by local people, using pooled local resources. We recruit persons from the area who have completed 10th standard, and train them for 45 days in the basics, teaching them about the eye, how to read a Snellen Chart and more. Most of their training however, is in rehabilitative services. It is in this area that the field workers are supremely impactful, because they successfully take these tools right to the doorstep of the patient. As we have seen over and over, once the community is involved in the delivery of services, our goal of integrating disabled people into mainstream social, school and work environments becomes far more attainable.



The project provides medical intervention, social, educational and employment rehabilitation, and support services for all disabled persons. So far, our CBR programs have been highly effective, and economically productive, too. In fact, during our work, we have noted that often CBR works better than rehabilitation at the centre. Since the sessions happen at the patient's home, they end up involving his or her immediate family. This system also engages the larger community: homemakers, headmasters and teachers are our volunteers. It is a strategy that spreads awareness, making the whole rehabilitative process smoother, with better results especially in integrating the patient back into the economic framework of the village. Support groups and self-help groups are often formed, just like at the centre. Every week, the groups meet to discuss and resolve issues, whether general or personal.

Field workers identify those who have visual impairment and send them to the screening camp. Once there, the extent of the condition is determined, and patients are sent on to the Primary Centre and beyond for clinical care, or rehabilitation counselling is commenced (if they cannot be cured). The Vision Guardian is in charge of the rehabilitation process, which usually takes 6 months for each patient. A Community Awareness program to educate people about personal hygiene, eye hygiene, night blindness, Vitamin A deficiency etc. is also put in place by the field workers around 4 times a year.

The CBR program can take between 2-5 years depending on the area, the population requiring help, support services available etc. Sometimes it can take as long as 8 years (like in the urban slums in Hyderabad). It has not always been successful in urban slums, being difficult to implement because of the migratory workers who make up the population in these slums.





The light at the end of the tunnel for people with visual impairment is the process of rehabilitation. All it needs is a willingness to learn and grow, and the strength to resume a life which, although it may not be the same as one's life before, can be just as celebratory. At LVPEI, we believe that rehabilitation is a new lease of life for our patients, and we strive to provide it with a persevering and compassionate spirit.

# SIGHTLINES

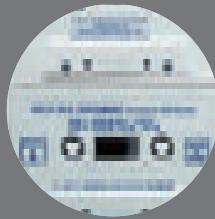
## VISION ENHANCEMENT & REHABILITATION



Dr. P R K Prasad Centre  
for Rehabilitaiton of  
the Blind and Visually  
Impaired established



Community  
Based  
Rehabilitation  
(CBR) projects/  
outreach services



Audio library

1990

'91

'92

'93

'94

'95

Community Based Rehabilitation (CBR)  
163 Villages in West Godavari district

Community Based Rehabilitation (CBR)  
189 Villages in West Godavari district



Meera and L B Deshpande Centre for Sight Enhancement established to provide low vision services, the first eye institute across the world to provide comprehensive low vision rehabilitation services as a part of the continuum of care of patients



Training programs in Low Vision Awareness (first-of-its kind in the country) and Short-term Fellowship in Low Vision commenced



Children's camp/ peer support program



Early intervention program

'96

'97

'98

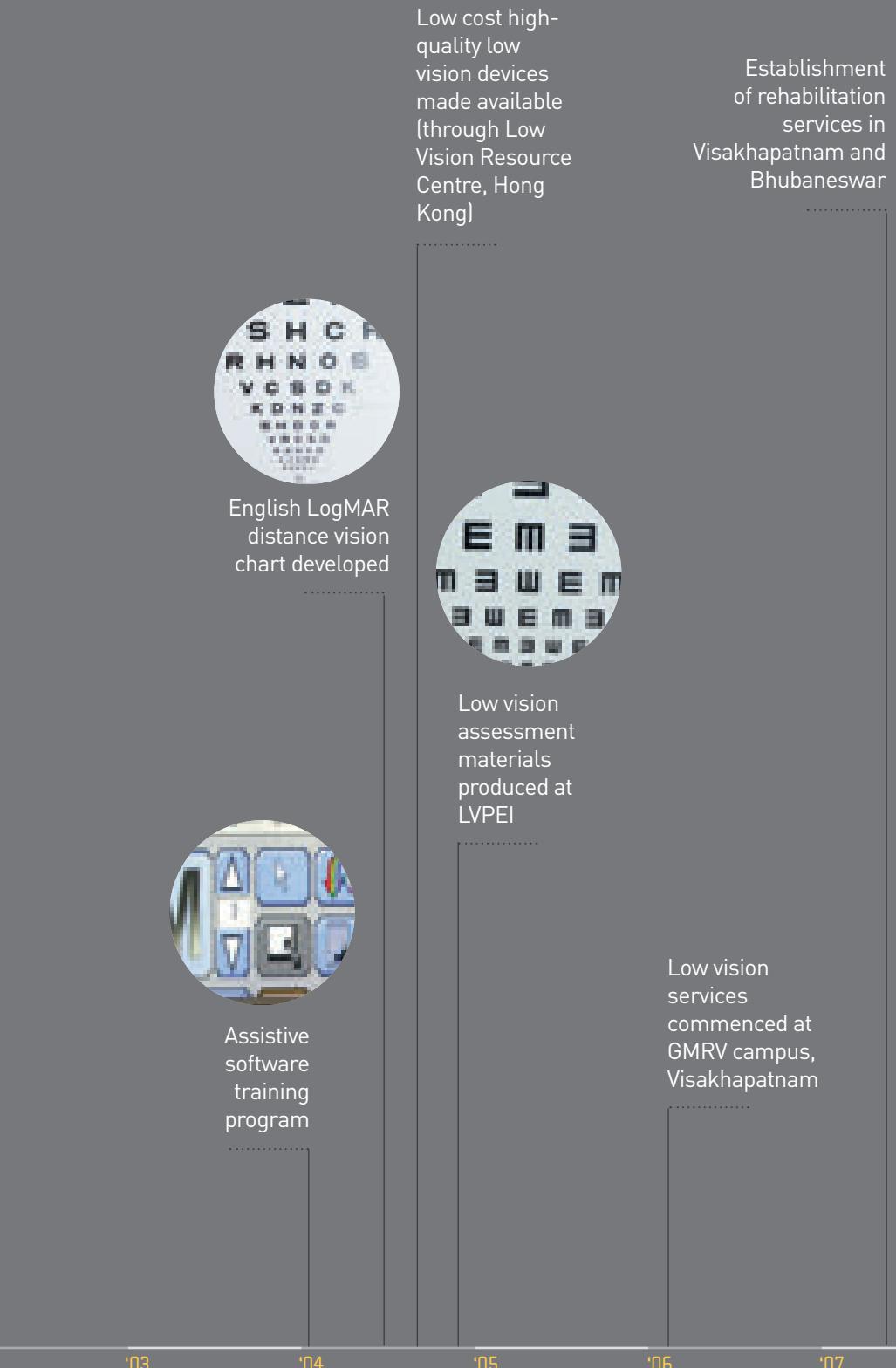
'99

2000

'01

# SIGHTLINES

## VISION ENHANCEMENT & REHABILITATION



Community Based Rehabilitation (CBR)  
45 urban slums in Hyderabad district



Digital audio library



Wide range of electronic low vision devices introduced

Multi-disciplinary therapeutic unit

Low vision services commenced at Secondary and Primary Centres across the LVPEI network



Telugu LogMAR near vision chart developed

Establishment of rehabilitation centre in Vijayawada

1,00,000 rehabilitation clients through centre-based and community-based services

Low vision services commenced at KVC campus, Vijayawada

Full-fledged low vision services commenced at Bhubaneswar campus, Odisha

'08

'09

'10

'11

'12

'13

# GETTING A PERSPECTIVE

## VISION ENHANCEMENT & REHABILITATION



**1,00,949**

People rehabilitated

*June 1992 to March 2012*



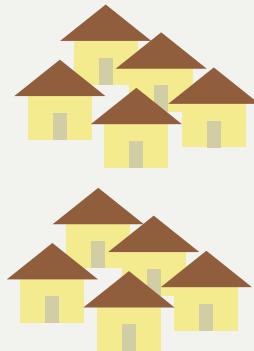
**9**

Community based  
rehabilitation projects  
*1994 to March 2012*



**24,00,000**

Population covered



**64**

Children's camp /  
Peer support programs  
*1992 to March 2012*



**4025**

Beneficiaries



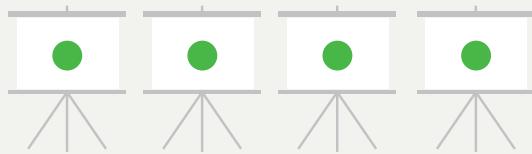
**10,282**

People benefited by Digital Audio Library  
*1992 to March 2012*



**60**

Publications  
*1992 to March 2012*



**86**

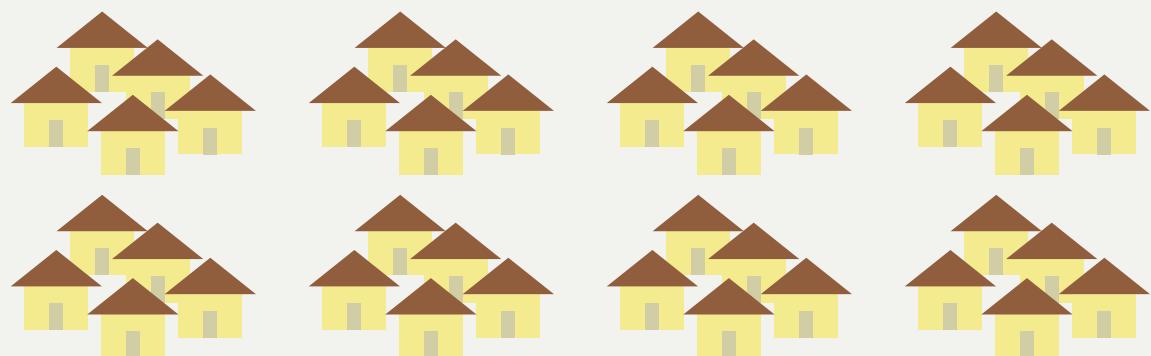
National  
presentations  
*1992 to 2012*



**53,686**

People underwent special skills training

*June 1992 to March 2012*



**102**

Parents/Teacher workshops

*1992 to March 2012*

**5042**

Participants



**17**

International presentations

*1992 to 2012*



**38,520**

Patients seen in  
Centre for Sight  
Enhancement  
*1997 to March 2012*



**33,376**

Medical concessions  
*August 2001 to March 2012*

## SPOTLIGHT

### VISION ENHANCEMENT & REHABILITATION

**Advocacy:** Making the visually impaired aware of their rights and programs they can benefit from.

**Assistive device:** Any device that helps to compensate for the effect of disability.

**Early Intervention:** Identification, assessment and intervention for children with developmental delay and disabilities between birth and 5 years.



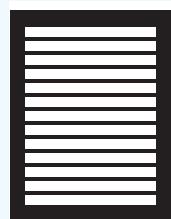
**Fun Camps:** A day full of games, food and laughter at the Rehab center for all participants and their families, organised periodically by the Institute.



**JAWS:** Job Access with Speech is a screen reading software that

enables people with severe visual impairment or the blind to use computers similar to a sighted person.

**Legally Blind:** A person with 75% visual disability (vision 20/200 in the better eye with correction) is considered legally blind in India. The eligibility for various Government support schemes such as travel, educational concessions are for people with 75% and more vision loss.



**Letter Writer:** A simple black colored double folded A4 size paper frame that has equal length of slits in its front page; it helps a visually impaired person to write in a straight line.



**Light Up:** A publication of the Vision Rehabilitation Centre



**LogMAR:** Designed by Bailey and Lovie in 1980, the LogMAR chart is used to assess Visual Acuity. It stands for Logarithm of Minimum Angle of Resolution.



**MAGic:** A screen magnification software that helps people with low vision view text and images on a computer screen in large size (up to 16 times the normal size), while hearing the content spoken through a speech synthesiser.



**Notex:** A rectangular piece of board with descending cuts on one side of its edges helps the visually impaired to identify

various denomination of currency.

**PWD Act, 1995:** The People with Disabilities Act passed by the Government of India. A landmark law that aimed proclamation on the full participation and equality of the disabled. The Act spells out the responsibility of the state towards the prevention of disabilities, protection of rights, provision of medical care, education, training, employment and rehabilitation of the disabled.

**Residual Vision:** Visual impairment isn't necessarily complete. Some people can still perceive light, others movement. Residual Vision is what we try to improve with rehabilitation.

**Sighted Guides:** Seeing through another's eyes. A technique used by which a blind person walks safely with a help of a sighted person. A minimal amount of training is required for the sighted person to practice this technique.

**Visual Acuity:** Clearness or acuteness of vision, measured by having

individuals identify different sized characters from a set distance.

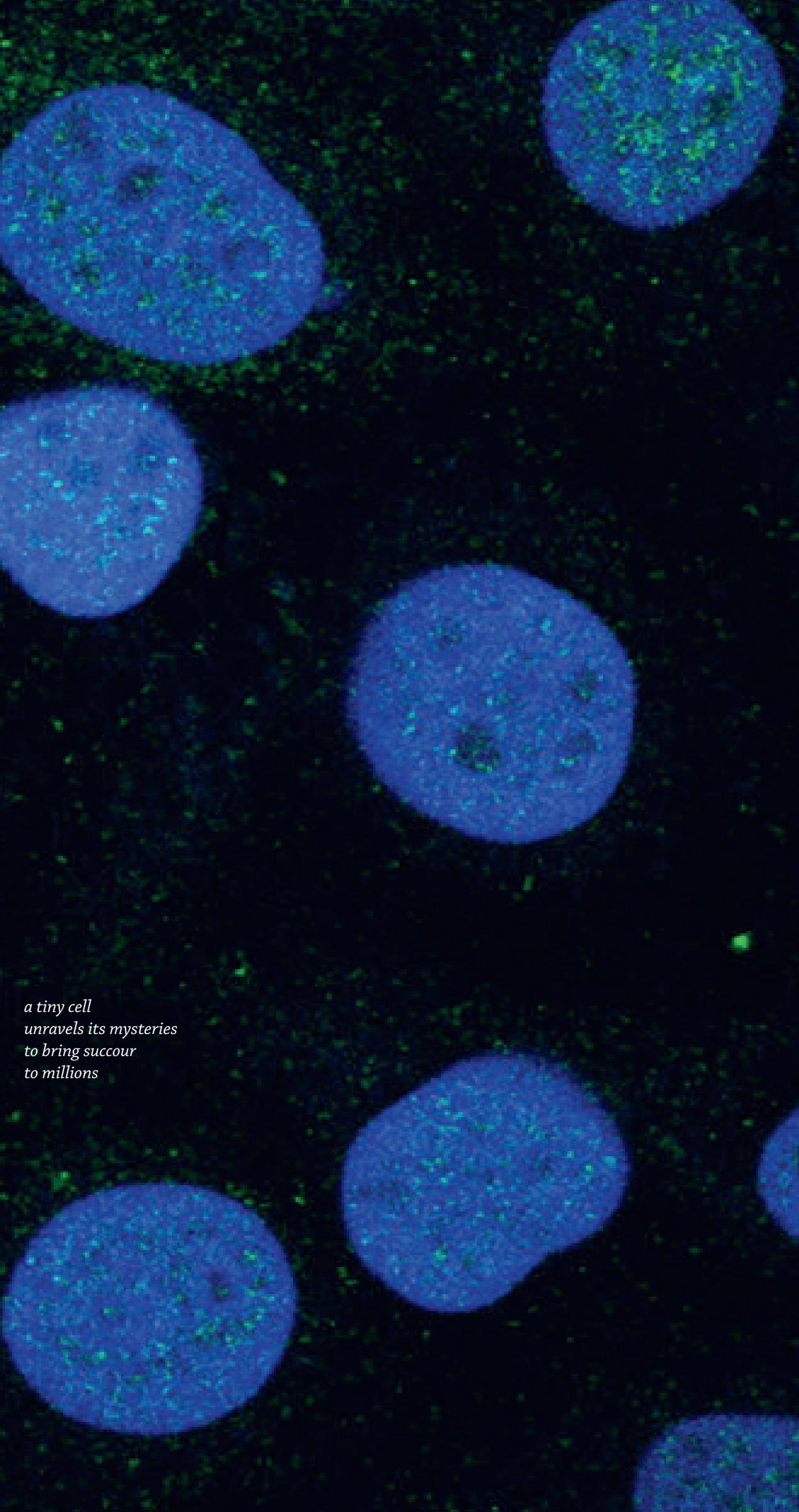


**White Cane:** A primary mobility aid that helps the visually impaired navigate their environment safely, gracefully and independently. Often it is described as the white cane because it is painted white or coated with reflective white tape. The origin of the white colour has many stories. Some say it was introduced by visually impaired photographer James Biggs so oncoming traffic could spot him easily. In 1931 Guilly d'Herbemont started a white cane movement in France and in the US, the cane is credited to George A Bonham. Today, although it has at least five varieties, the techniques to be followed by the visually impaired for using the white cane are universal.

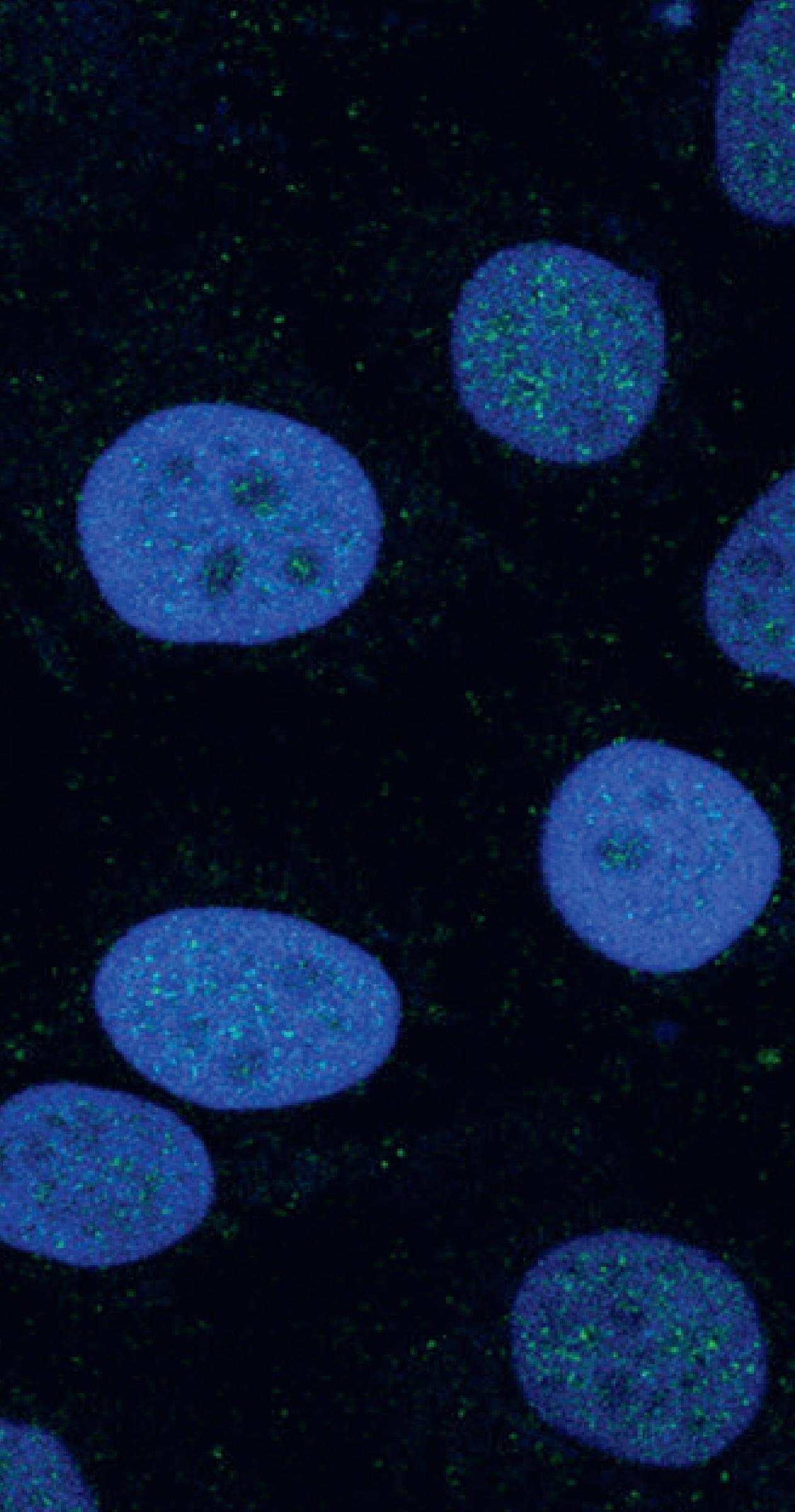
The future of  
medicine lies in the  
hands of those who  
push the limits of  
the known and the  
possible.

At LVPEI, we drive  
research towards  
cutting edge  
solutions and new  
knowledge in vision  
science.

Dr. D Balasubramanian



*a tiny cell  
unravels its mysteries  
to bring succour  
to millions*



The wisdom of LVPEI lies in its commitment to basic research, to find the genetic basis or the faulty genes responsible for a specific disease.



*tiny cells form  
connections,  
collages of life  
patterns of existence*

5.

# RELEVANCE & RIGOUR

RESEARCH



**FROM CELL TO COMMUNITY . 352**  
Inner Workings . 356 | Symbiotic Relationships . 357

**GETTING DOWN TO BRASS TACKS . 360**

**TESTING KNOWLEDGE . 364**

**CHANNELS OF DISCOVERY . 368**

**PATTERNS OF PREVALENCE . 370**

RAVI: The Study Procedure . 376

*Sightlines . 382*

*Getting a Perspective . 388*

*Spotlight . 392*

Research involves the discovery of the beautiful, cryptic patterns and rhythms in nature, and making sense of them. Peering into the heart of a cell can unearth astonishing truths that, if applied correctly, can be almost miraculous in their effects. Small findings can swell into a new lease of life for a human being. A gathering of data and statistics can become the bases of solutions to problems that have plagued our communities for millennia.



It is often seen that delving into the mysteries of the human body can confound the researcher. If, however, the study is conducted with a proposition of passion and a drive to heal, that very endeavor can be life-changing for thousands, who earlier did not have even a gleam of hope. Research at LVPEI radiates that sense of purpose with rigour: to feed and enrich clinical therapy and diagnostics with relevant new findings, to inflate the pool of healing procedures and address the eye problems of people in need. In turn, research is propped up by practical application, which it needs in order to go even further. And so, supported by the Indian government, competitive international grants and our own resources, we think and discover, study and write, experiment and extrapolate: all towards the end of finding newer, sharper ways to combat eye disease.

At LVPEI, research is never isolated in the sequestered environs of the laboratory. Translational research is beginning to transform several of our findings into reality: taking what we discover in our labs and our treatment rooms, and applying it, Bench to Bedside, and beyond, to Community. Our efforts are focussed towards fostering connections between clinicians and basic researchers for a comprehensive understanding of the disease. Each type of research blending with, feeding into, and supporting the other, and collaborating with medicine in a multi-pronged way.

Basic research at LVPEI seeks to understand and manage the complexity of eye defects, whether it is molecular, micro- or cell biology. Genomic studies on human eye diseases have focussed on understanding the molecular basis of cataract, retinitis pigmentosa, glaucomas, retinoblastoma, corneal dystrophies and retinopathy of prematurity. This has been achieved through identification of the gene defect in the afflicted family and exploring potential means of diagnosis and prevention.

<sup>352</sup> Studies on bacteria and fungi associated with eye infections can improve the

diagnostic capabilities and knowledge of the mechanisms that may impact therapy of these conditions. "Microbiologists at LVPEI aim to unravel the secrets of habitat, environmental existence and pathogenesis of a newly recognised ocular pathogen, Microsporidia," says Dr. Savitri Sharma. The seminal research into limbal stem cell therapy has been one of our biggest achievements, urging us to find cures to treat retinal degeneration and more. New research in the fields of visual psychophysics



and ophthalmic bio-engineering takes us to the cutting edge of science. Multidisciplinary clinical research and trials of global standards convert our extensive hands-on expertise into deep knowledge in diverse areas; from extended wear contact lenses, to more efficient drug delivery systems. Public health or community research works towards generating interventions to raise standards, including, as it does here, epidemiological and operations research in rural and urban areas. Another area of research is in low vision rehabilitation. This is oriented towards eye disease outcomes, studying how the quality of life of the individual has improved after the use of rehabilitation devices.

Physicians and scientists constantly interact, brainstorming different aspects of the problem to get at the etiology and prevention of eye diseases, as also therapy. Our faculty makes presentations and publishes papers regularly, converting real-life experience into invaluable knowledge. Collaboration between clinicians, and applied and basic scientists is our preferred style of working. In a country where the MD-PhD combination is a rarity, we encourage our scholars and clinicians to pursue doctorates from universities in India and abroad. Thus, innovative clinical practices percolate to meaningful health outcomes, and push the frontiers of what we know about eyesight – so that one day, all may see.

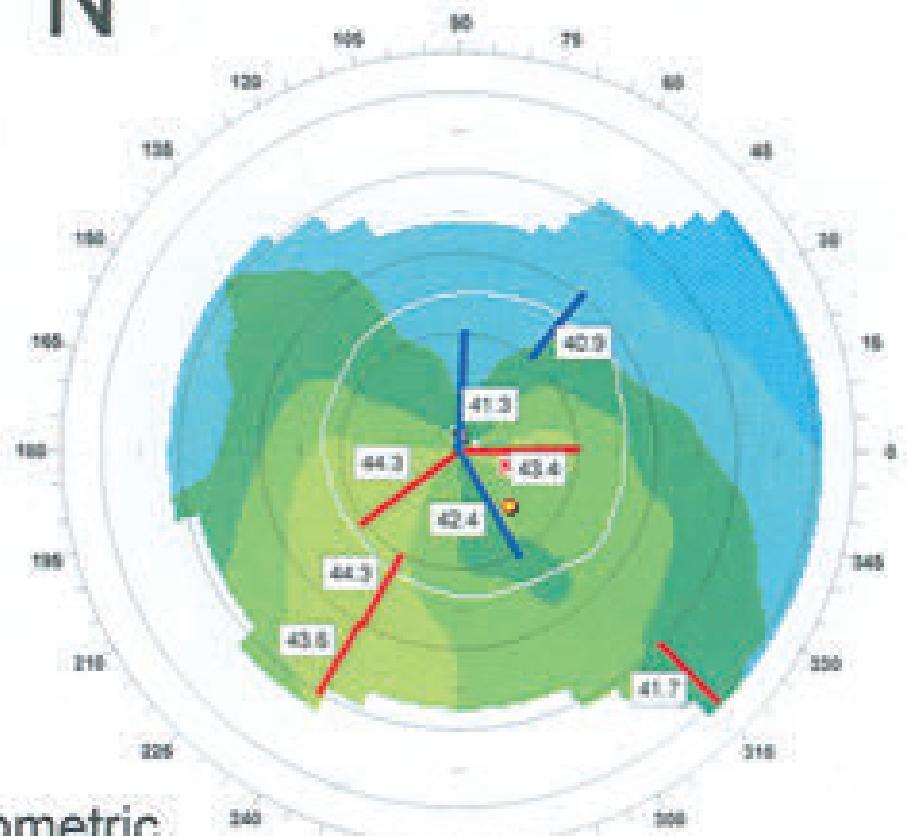
0.005 mm Color Steps

Anterior

Float



N



Keratometric

1.0 D Color Steps

Elevation BFS

8.20mm/41.2D

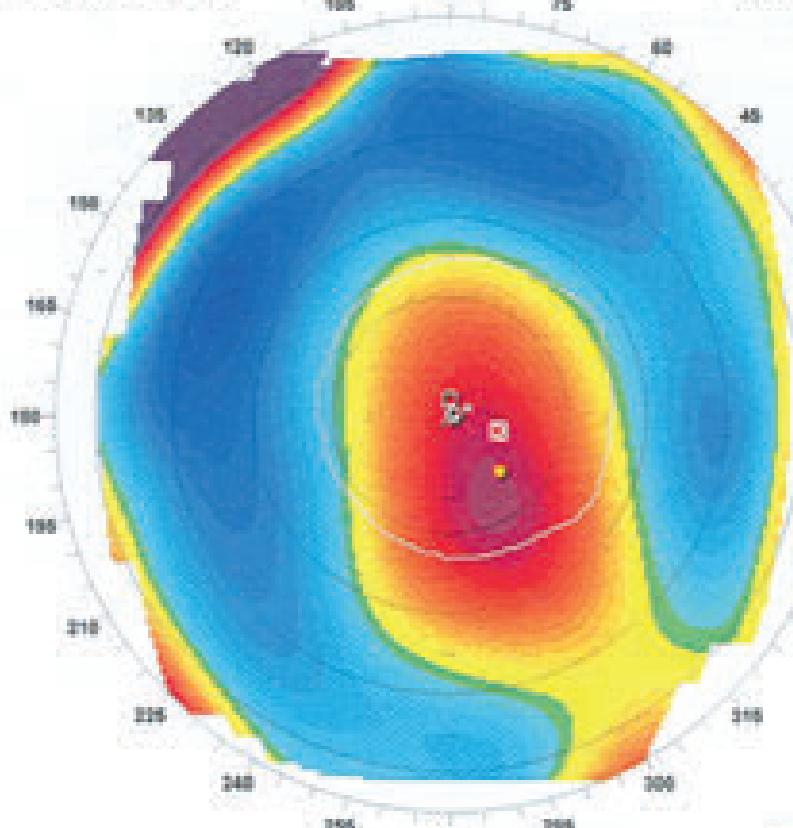
Axial Power

Elevation BFS

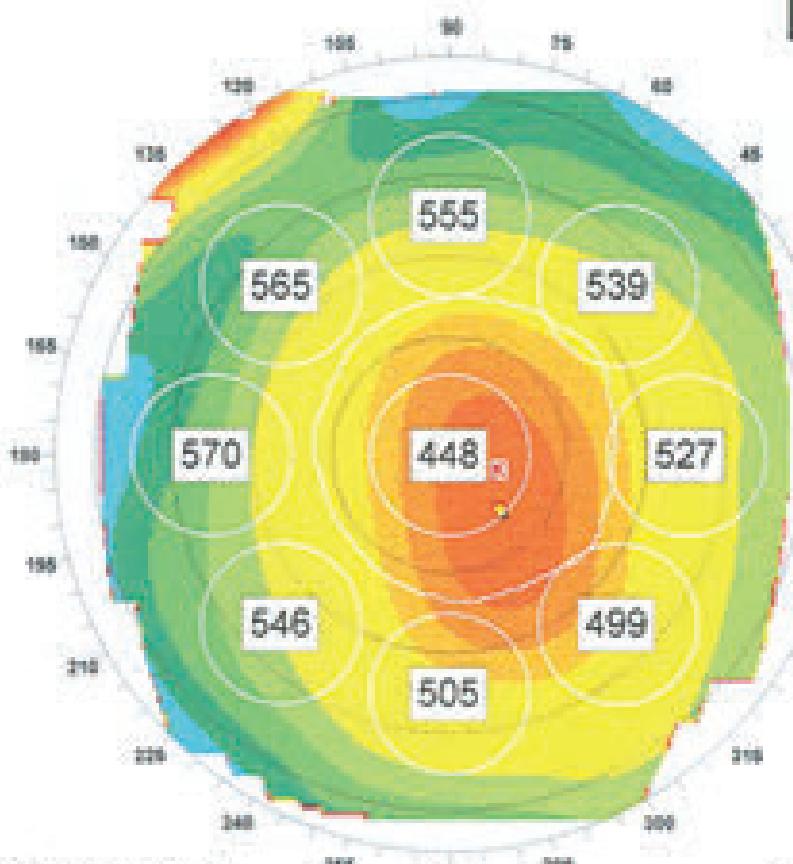
0.005 mm Color Steps

Posterior

Float



T



Thickness

20 mic Color Steps

0.92 Pachymetry

Anterior and posterior float maps imaged on the Orbscan IIz

## INNER WORKINGS

Several national and global awards later, we're still forging ahead. Led by the Hyderabad Eye Research Foundation (HERF), we strive to find solutions to some of the most perplexing areas of vision science. HERF also conducts research for the multinational research and development group, Vision CRC (operating from Sydney, Australia), of which it is a part. This includes delving into the genetics of myopia, and clinical studies about antibacterial contact lenses and corneal onlays.

The Brien Holden Eye Research Centre (BHERC) was a labour of friendship with Prof Holden who supports us in our research endeavours. The centre was developed through support from Prof Holden and his group at the then Institute for Eye Research (now the Brien Holden Vision Institute) in Sydney, Australia, growing from the small research activity we had until 1992. Prof Holden and his team of purposeful eye doctors visited LVPEI right in the beginning, bringing a wealth of experience and insights, which fed into our basic and clinical research program, starting from the contact lens research. The 5th floor, dedicated to research, is named after him.

BHERC is now an amalgam of various laboratories, (each named after a very generous donor) and conducts some of the world's best research in causes and treatments of eye impairment. It contains the following:

- The Champalimaud Translational Centre for Eye Research (C-TRACER) working on genomics and stem cell research, funded partly by a Portuguese foundation
- The Jhaveri Microbiology Centre, which started off our basic research program in 1991
- The Saroja A Rao Immunology Laboratory
- The Kallam Anji Reddy Molecular Genetics Laboratory
- The Ophthalmic Pathology Laboratory
- The Sudhakar and Sreekanth Ravi Stem Cell Biology Laboratory
- and the clinical research laboratories.

Cutting edge research can go nowhere without high-end technology, a steady flow of accurate information and the latest systems handling. These are a part of our workings, along with high-end physical infrastructure, high throughput and testing facilities (like the dynamic vision laboratory), and statistical expertise. A brilliant faculty, recognised by peer bodies like the American Academy of Ophthalmology (AAO) and the Association for Research in Vision and Ophthalmology (ARVO) brings excellence to the table in education and research. Research scholars and scientists work tirelessly to ensure a brighter future for vision science. Our core faculty is assisted by a variety of professionals: ophthalmology and optometry fellows, as well as support professionals such as social scientists, rehabilitation workers and bio-statisticians. Engagements with world leaders in eye research make us stronger still, allowing researchers to access superior facilities and a broader base of information.

## SYMBIOTIC RELATIONSHIPS

We are able to move forward in our research because of grants from:

- The Department of Biotechnology, India
- Department of Science and Technology, India
- Council of Scientific & Industrial Research, India
- The Indian Council of Medical Research, India
- The National Eye Institute (NEI, National Institutes of Health), USA
- The Wellcome Trust, UK
- The Champalimaud Foundation, Portugal



LVPEI has been one of the four core partners in the multinational research and development group Vision Cooperative Research Centre, Sydney, Australia, since its inception over 8 years ago. Part of the Australian government's cooperative research program, the group promotes original research, product innovation, development, commercialisation and public good through humanitarian projects. HERF conducts genetics research and clinical studies as part of Vision CRC. A formal US-India eye research collaboration facilitates joint research projects between the two nations.

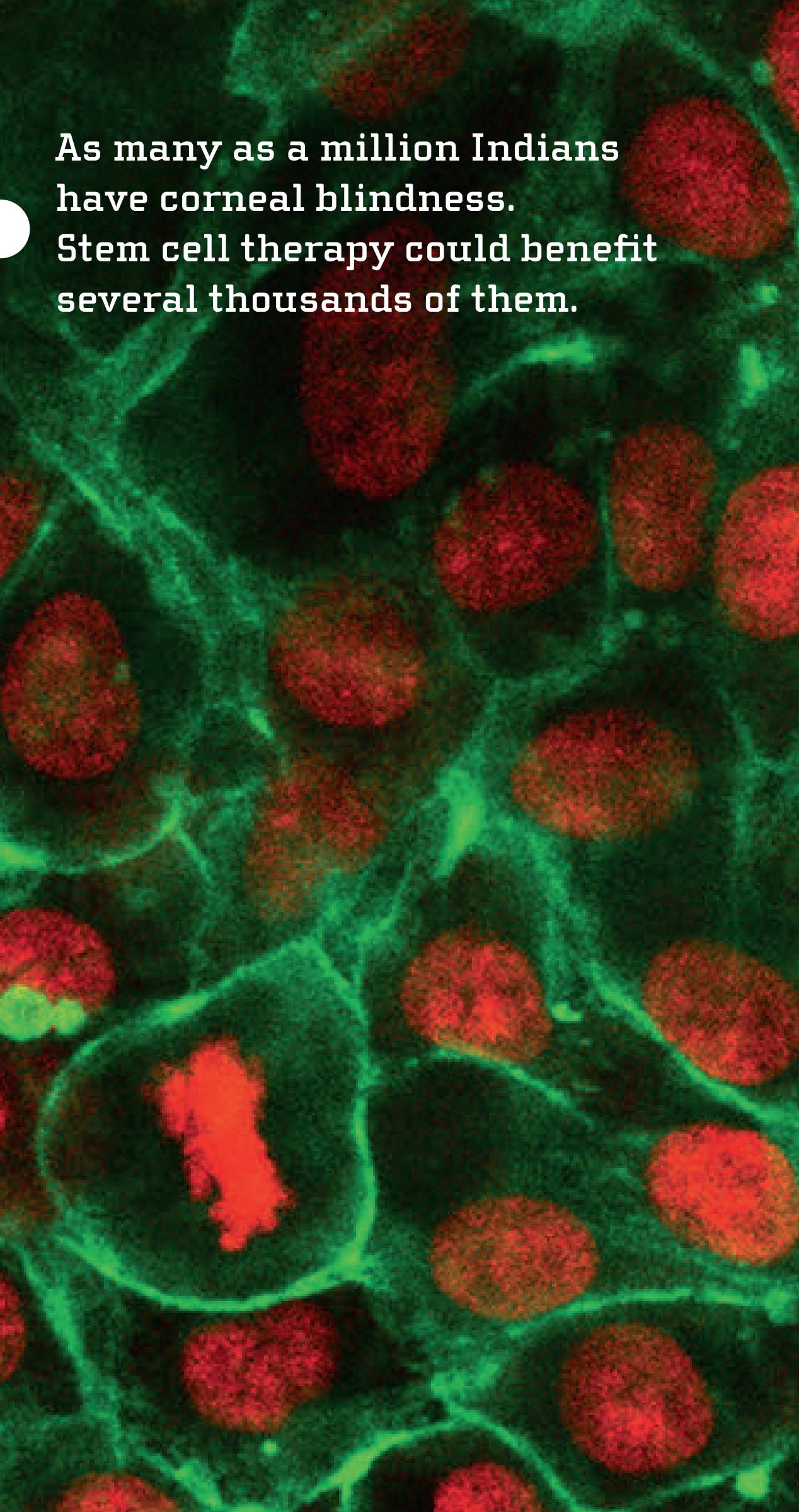
Research ties in with a component of training – our scholars can become doctoral research students in PhD programs with Hyderabad University and BITS Pilani, as well as the University of New South Wales, Australia, as we are recognised as an external research centre by these bodies.

Programs of collaborative research with national laboratories let researchers access state-of-the-art equipment and facilities: The Centre for Cellular & Molecular Biology, Centre for DNA Fingerprinting & Diagnostics, National Institute of Nutrition, University of Hyderabad – all in Hyderabad, The National Institute of Biomedical Genomics, Kalyani and The Indian Institute of Science, Bangalore. Other associations have been formed with the Institute of Life Sciences, and the National Institute of Scientific Education and Research, at Bhubaneswar.



One of the basic research areas at LVPEI is directed to find a cure for the incurably blind, a quarter of the 6.7 million blind people in India.





As many as a million Indians  
have corneal blindness.

Stem cell therapy could benefit  
several thousands of them.

## GETTING DOWN TO BRASS TACKS

### BASIC RESEARCH

The most fundamental level of research at LVPEI traverses the limits of biology to understand the pathology of diseases that have no cures, such as inherited and age-related complex eye diseases. Our basic research is constructed of genomics, microbiology and stem cell research. We study the genes, cells and molecules in order to seek solutions for congenital cataract, congenital and adult-onset glaucoma, age-related macular degeneration, hereditary corneal disorders, retinal degenerations, and pediatric retinal diseases.

About 1 out of every 1000 persons in Andhra Pradesh is affected by retinal degenerations. This group of diseases leads to incurable blindness or severe vision loss in childhood or early adulthood because of the death of light-sensitive retinal cells. At LVPEI, we have taken on the task of finding the underlying disease genes in families afflicted with retinal degenerations. This work has revealed genes that give rise to these disorders, defined for the first time in Indian populations. Knowledge of underlying genetic causes is a prerequisite for developing suitable therapeutic strategies based on gene therapy. Our genetics research has also involved the delineation of underlying mechanisms of various hereditary eye disorders affecting infants and children that result in severe visual loss and blindness. We have identified genes and genetic alterations leading to these conditions, which helps in setting up genetic testing and counselling of families.

Genomics concentrates on gene mapping, genotype/phenotype correlations and clinical manifestations, as well as genetic profiling. Recently initiated proteomic studies involve identification of biomarkers in some of these diseases. Scientists are working on devising molecular markers for early detection, and identifying the underlying molecular functions in these eye diseases. The microbiology studies focus on the molecular and clinical aspects of various microbes including bacteria, fungi, viruses, and parasites that cause eye infections. They work at discovering molecular diagnostic tests, mechanisms of antibiotic resistance and molecular profiling of organisms and the identification of species. A unique DNA-based kit was developed with the help of Xcyton, Sankara Nethralaya and the Centre For Cellular & Molecular Biology to detect multiple pathogens.

Research in the area of stem cells has been one of our successful areas of application-based research. LVPEI's track record in the treatment of corneal surface damage due to burns or chemical injury by autologous cultured limbal epithelial transplantation (CLET) using the stem cells from the unaffected eye is a much-lauded one. Nearly 800 Indian and international patients (the largest number in the world) have gone through this procedure with us since the first limbal stem cell transplantation we did in 2001.

However, in some patients, if both eyes are affected, allogeneic transplants are done using healthy tissues from living, related donors, which usually requires the patient to take high doses of immune suppressants in order to avoid graft rejection. Our research team has demonstrated that if no limbal stem cells are available, the ocular surface can be successfully reconstructed using cells from the patient's own oral cavity. This procedure bypasses graft rejection issues, without the additional costs and health risks related to the long term usage of immune suppressants.

Taking this procedure further for large-scale application, LVPEI in collaboration with Sheffield University, has begun research on a Wellcome Trust funded project. "By adopting the tea-bag approach, we are trying to develop a lab-independent technique where the limbal stem cells will be grown on the surface of the eye using a synthetic membrane instead of a biological membrane," said Dr. Virender Sangwan. The synthetic membrane will ultimately be available off-the-shelf and the treatment could be scaled up.

As a new initiative, the stem cell group at LVPEI is focussing on basic research activities related to harnessing the potential of cell therapy to address retinal dystrophies and corneal endothelial dystrophies. Apart from exploring the potential of different sources of adult stem cells, we have now entered into the area of basic research involving pluripotent stem cells such as the human embryonic stem cells (ESCs) and the induced pluripotent stem cells (iPSCs) for ocular applications.

Our work in the field of Visual Optics and Psychophysics uses computerised visualisations to give clinicians a better understanding, pre-surgery, of how defective eyes see images. We are also examining how babies and infants see, how they focus and align their eyes to achieve clear vision. Since it is very different from the way adults see, we hope to eventually use this data to develop application therapies for people with squints, lazy eyes, etc. In our labs we use non-invasive psychophysical techniques to measure focusing and eye-alignment responses and electro-encephalography (EEG) techniques to measure activity of the visual cortex.



*This picture illustrates the blurring caused by imperfect optics of the eye and how it impacts the view of the world we see. The pictures in the top panel show blurred versions of the Taj Mahal and the bottom panel shows how a light dot appears in a retina with imperfect optics. These images were created using a computer software developed at the Visual Optics and Psychophysics laboratory in collaboration with the School of Optometry, Indiana University, Bloomington.*

## TESTING KNOWLEDGE

### CLINICAL RESEARCH

The large volumes of patients that pass through our doors have given us an edge: one of experience. Applying this to furthering know-how, clinical methodologies and healing strategies is one of our primary aims, leading to new and effective treatments for ophthalmic diseases. Clinical research at LVPEI consists of multi-site clinical trials to determine how safe and effective new ophthalmic drugs and devices are. It also consists of intra mural research, retrospective and prospective studies. Every clinician is involved in at least one study.



With international standards of execution and ethics (our clinical trials involving humans are subject to review and monitoring by an Institutional Review Board that ensures transparency and accountability), our clinical research program has attracted funding from India and abroad, from governments, collaborations and multinational drug companies. All research is devised and conducted by teams trained in Good Clinical Practice, consisting of qualified and trained ophthalmologists, optometrists, clinical research coordinators and support staff. We also collaborate with the pharmaceutical industry (like contact lens manufacturers) and research groups across India and the world.

At LVPEI, clinical research delves into a few specific areas. These include looking into the suitability of extended wear contact lenses. This program was our first clinical one, supported and feeding right back into basic research in the area, in collaboration with Vision CRC in the early 1990s, when the Clinical Research Centre operated out of a small room.

Gene therapy is an area we are exploring. Emerging from a big breakthrough by the 3 teams that have been working on this research for over 15 years, are the findings about a particular form of retinal degeneration wherein the gene RPE65 is defective. Our therapy with that gene will help the condition's success rate go from nothing to something, even make patients ambulatory. The government is formulating a policy regarding the application of gene therapy, and once the regulations are in place, we will be one of the first to practice this in India.

Today, at any given time, we have 20-25 ongoing clinical trials, and our capacity has increased manifold with our expansion into other cities. Pharmacodynamics

and the efficacy of drugs and antibiotics is another area of study. So far, we have successfully completed over 50 sponsored and in-house clinical trials, many of which were large, multi-center global trials for approval by the US FDA. Successful trials have included revolutionary treatment modalities like the Bausch & Lomb Uveitis Implant trial (Retisert). For the ongoing study related to this implant, [SC YFiX], LVPEI is the only global centre.

**40 percent of the children suffering from glaucoma carry a mutated gene.**





Primary Congenital Glaucoma affects one in every 3300 children born in Andhra Pradesh. It is a disease attributed to genetic defects inherited at birth. If untreated, it damages the optic nerve, severely compromising vision and eventually leading to blindness. Consanguineous marriages increase the chances for the autosomal recessive disorder: a genetic disorder that shows up in people whose parents each have a copy of the same mutated gene. Migrations and mixing of populations resulted in the transfer of gene defects across different ethnicities over millennia. Such a phenomenon has been observed quite extensively in this disease. India is fertile ground for research in this area because of the vast number of people who marry within families and communities.

# CHANNELS OF DISCOVERY

## ENTEROBACTER ENDOPHTHALMITIS Clinicomicrobiologic Profile and Outcomes

ANNEAU PATERNOU, DO, FRCR,<sup>1</sup> REMYNE S. THIRUMALA, MD,<sup>1</sup> ANNE MARIE SPICOLI,<sup>2</sup> SEBASTIEN DAUILLI, MD,<sup>1</sup> AUREL B. MAIER, MD,<sup>1</sup> SUKADHAR R. DAS, MD,<sup>1</sup>\* SOTHEA SHARMA, MD,<sup>1</sup> TAKAFUMI OSA, MD<sup>1</sup>

### REVIEW

#### In vitro culture and expansion of human limbal epithelial cells

Antonella Marzocca,<sup>1</sup> Alessio Tamburini,<sup>1</sup> Antonio Sorio,<sup>1</sup> Stefano Ricci,<sup>1</sup> Fabio Cicali,<sup>1</sup> Giacomo Gatti,<sup>1</sup> Francesco Baldassarre,<sup>1</sup> Gianni G. Vassalli<sup>2</sup>

<sup>1</sup>Unità di Trapianto di Oftalmologico, Istituto Superiore di Sanità, Roma, Italy; <sup>2</sup>Unità di Trapianto di Oftalmologico, Istituto Nazionale Tumori, Milano, Italy

## Opacification of Intraocular Lenses Implanted during Infancy

### A Clinicopathologic Study of 4 Explanted Intraocular Lenses

Miriam E. Polse, DDS,<sup>1</sup> Sudhir Raju, PhD,<sup>2</sup> Costa K. Mavrogianni, MD, DDS,<sup>1</sup>  
Punit K. Vaidhani, MD,<sup>3</sup> Nitin Patel, DDS,<sup>1</sup> Subhadra Jaddi, MD,<sup>2</sup> Margarita Diaz, DDS<sup>1</sup>

DOI: 10.1073/pnas.0913133106

Edited by Michael J. Bamshad, University of Utah, Salt Lake City

#### Mapping of locus for autosomal dominant retinitis pigmentosa on chromosome 6q23

Chitra Kannan,<sup>1</sup> Hardeep Pal Singh,<sup>1</sup>  
Subhadra Jaddi<sup>1</sup>

## Asia-Pacific Journal of Public Health

<http://aph.sagepub.com>

An Estimate of Patient-Costs and Benefits of the New Primary Eye Care Model Utilization Through Vision Centers in Andhra Pradesh, India  
Vivek Kaval,<sup>1</sup> Suganya N. Rao,<sup>1</sup> Shiva Reddy,<sup>1</sup> Somayya Venkatesh,<sup>1</sup> Sudhira K. Bhattacharya,<sup>2</sup>  
Srinivas Ramamurti<sup>3</sup> and Ranjith Khanna<sup>4</sup>  
*Asia Pac J Public Health* 2011 20: 406, originally published online 16 May 2011  
DOI: 10.1177/1010551311417779

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

[pubs.acs.org](http://pubs.acs.org)

## Population Based Outcomes of Cataract Surgery in Three Tribal Areas of Andhra Pradesh, India: Risk Factors for Poor Outcomes

Rakesh C. Sharma<sup>1,2</sup>, Sudheendra Reddy Pallidu<sup>3</sup>, Nitin Bhambhani Patel<sup>4</sup>, Balu Krishnamoorthy<sup>5</sup>,  
Sandhya B. Ganesan<sup>6</sup>, Pradeepa Venkateswari Ramu<sup>7,8</sup>, Chandrasekhar Palamuru<sup>8</sup> Subash Chander<sup>9</sup>,  
Abdulaleem Chander<sup>9</sup>, Oliver B. Schmitz<sup>10</sup>

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## A Randomized Controlled Trial Assessing the Effectiveness of Strategies Delivering Low Vision Rehabilitation: Design and Baseline Characteristics of Study Participants

Bente Chiaty<sup>1</sup>, Jill E. Keeffe<sup>2</sup>, Praveen K. Venkatesan<sup>3</sup> and Gopalakrishna Rao<sup>4</sup><sup>1</sup>Ms. J. E. K. Patel Center for Rehabilitation of the Blind and Visually Impaired, <sup>2</sup>C. V. Visiting Eye Institute, Department of Ophthalmology, University of Michigan, Ann Arbor, Michigan<sup>3</sup>Walter Cooperstein Research Center, Sydney Eye Hospital, University of New South Wales, Kensington, Australia<sup>4</sup>Visas Cooperative Research Center, Sydney, Australia and <sup>5</sup>Padmashri Bhawan, Hyderabad, India

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## MAJOR REVIEW

### Microsporidial Keratitis: Need for Increased Awareness

Kurtis Stause, MD,<sup>1</sup> Apoorva Rao, MD,<sup>2</sup> James Joseph, MD,<sup>3</sup> Kavita Venkatesan, MD,<sup>4</sup> and Venkateswaran Murthy, MD,<sup>5</sup>

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JVOPI Online First published on February 1, 2013 DOI 10.1167/jvopht.2013.200147

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### Simple limbal epithelial transplantation (SLET): a novel surgical technique for the treatment of unilateral limbal stem cell deficiency

Mehmet S. Saenger,<sup>1,2</sup> Sezen Kara,<sup>1,2</sup> Shale Marder,<sup>3</sup> Devrimen Balabolkanerler<sup>4</sup>

JVOPI Advance Access published August 17, 2012

From Molecular Genetics, 2012; 2: 2  
doi:10.1167/jvopht.2012.200147

### A polymorphism in the CYP1B1 promoter is functionally associated with primary congenital glaucoma

Nishchalika Chakrabarti<sup>1,2</sup>, Neelima Chatterjee<sup>1,2</sup>, Kironpreet Kaur<sup>1</sup>, Baljeet Kaur<sup>1</sup>, Anil K. Mandal<sup>3</sup>, Kuljeet K. Rao<sup>1</sup>, Rajat S. Parikh<sup>1</sup>, Ravi Thomas<sup>1,2</sup> and Partha P. Majumder<sup>1</sup>

### Variants in the 10q26 Gene Cluster (OOC387715 and HTRAS) Exhibit Enhanced Risk of Age-Related Macular Degeneration along with CFH in Indian Patients

Subrata Kaur,<sup>1,2</sup> Nirmala Katta,<sup>1,2</sup> Arif Hussain,<sup>1</sup> Nasim Hussain,<sup>1</sup> Anuradha Mukherjee,<sup>1</sup> Raju Narayanan,<sup>1</sup> Anil K. Mandal,<sup>3</sup> Rajeev K. Joshi,<sup>1</sup> Ajit B. Mehta,<sup>2</sup> Tanujendra Dixit,<sup>1</sup> and Subhabrata Chakrabarti<sup>1</sup>

### Pupil responses to near visual demand during human visual development

Shrikant R. Bharadwaj

Hyderabad Eye Research Foundation, Hyderabad and Lumbini School of Optometry, L.V. Prasad Eye Institute, Hyderabad, Andhra Pradesh, India

Jingyan Wang

Retina Foundation of the Southwest, Dallas, TX, USA

T. Rowan Candy

Pittman University School of Optometry, Waco, TX, USA

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## PATTERNS OF PREVALENCE

### PUBLIC HEALTH RESEARCH

Besides medical research, the Allen Foster Community Eye Health Research Centre at the International Centre for Advancement of Rural Eye care (ICARE), the public health wing of LVPEI, conducts epidemiological research to better understand what different groups of people need. This research helps us identify local needs and then adjust our processes to them. In this way, we can provide better services and educate caregivers and patients on how to prevent and combat eye disease. The Andhra Pradesh Eye Disease Study (APEDS), carried out from 1996-2000, was a population based cross-sectional study, one of the first and most exhaustive to be conducted in the developing world. It enumerated the sheer numbers of people in need of eye care in Andhra Pradesh: over 8 million people needed medical aid if they were to carry out their normal activities independently, and an additional 800,000 required some type of visual aid.

The main findings from APEDS:

1. We thought cataract was causing 80% of blindness. Now we know the figure is closer to 45%-50%.
2. Not having a pair of glasses (uncorrected refractive error) is the second reason for blindness and first cause of visual impairment. Later studies done in different parts of the world validated this APEDS finding.
3. Outcome studies by LVPEI showed that a huge number of people were still blind (23% in Hyderabad and 38-45% in rural Andhra Pradesh) even after undergoing cataract surgery. We needed to know the outcome of surgeries rather than just tot up high numbers of surgeries. Studies from other regions showed similar results.

We also found that glaucoma and retinal diseases, as well as blindness in children were big issues that needed to be tackled. Over 50 papers were published based on the APEDS findings by LVPEI. Our main conclusion was this: If we could handle uncorrected refractive error and solve cataract and glaucoma at the most basic level, then 75% of blindness in Andhra Pradesh could be addressed. Because of this thought, the APEDS became the anchor of the LVPEI Pyramid of Health, helping us prioritise our efforts. The Government of India has now adopted this model for their next 5 Year Plan.

Thereafter, APEDS II was conducted in rural locations to assess the availability of the APEDS I cohort group. 70% of the participants from APEDS I were available and willing to participate in APEDS III. This will go a long way in helping us understand the changes in the delivery and impact of eye care over 15 years. APEDS III will also focus on the progression of various eye conditions.

APEDS has been a very useful tool for us, but it was difficult and expensive to conduct. It also required experts in epidemiology. So we started working on adapting and developing community research methodologies that would be quicker, just as efficient in estimating the extent of the disease and helping us plan our programs, but would not require such an immense financial input. These were the Rapid Assessment methods.

One of the earliest methods we used was the Rapid Assessment of Cataract Surgical Services (RACSS), which studied the prevalence of cataract and surgical services to treat cataract. The Rapid Assessment of Avoidable Blindness (RAAB) was an improved and more comprehensive study, also adapted, moving beyond just cataract to cover conditions causing visual impairment. Even with RAAB, however, there were gaps found. The data collected on uncorrected refractive errors only related to their prevalence and did not give any information on spectacle use and coverage, which is a more accurate way of understanding how deep the penetration of eye care services is in the community. The RAAB also fell short on another marker – it did not provide any data on uncorrected presbyopia, which is a major reason for visual impairment.

And so a more efficient and very innovative rapid assessment method was developed by LVPEI between 2006-2010. It was called the Rapid Assessment of Visual Impairment (RAVI). The study was carried out on the fishing and weaving communities of Prakasam district, a set of little coastal villages in Andhra Pradesh. Our goal was to estimate the prevalence and common causes of visual impairment, prevalence of presbyopia, spectacle coverage, cataract surgery coverage, and barriers to the uptake of eye care services. It also brought in a new indicator: the 'willingness to pay' for cataract surgery and spectacles for uncorrected refractive errors and presbyopia, which is essential while setting in place the pricing system for eye care services. In Prakasam district, we found that most of the people who had vision problems did not have access to treatment, not even simple, low cost spectacles. The knowledge we gleaned from the RAVI helped us immensely in planning our eye care services for the area. A model that would be accessible, affordable and acceptable to the people.

The RAVI methodology is simple and straightforward, utilising local personnel to collect data. The information was gathered in 12 weeks, which meant that the study could be repeated regularly in this area and easily replicated for others, to keep abreast of the changes in the spread and causes of eye diseases.

## STUDY ID NUMBER

A: HOUSEHOLD NO: \_\_\_\_\_

B: SUBJECT NO: \_\_\_\_\_

QUESTION	RESPONSE
<b>B108. EDUCATION</b>	
<b>B108.1. WHAT LEVEL OF EDUCATION HAVE YOU ATTAINED ?</b>	
(Applicable for subjects aged > = 5yrs)	
1 No education	
2 Primary school (class 1-5)	
3 Intermediate school (class 6-10)	
4 Secondary school (class 11-12)	
5 Tech. course / diploma (After class 10)	
6 College (undergraduate)	
7 Advanced studies (Post grad, Professional)	
-99 Not applicable	
<b>B108.2. CAN YOU READ AND/OR WRITE ANY LANGUAGE ?</b>	
(Applicable for subjects aged > 10yrs and level of education is 1 or 2)	
1 Can read & write	
2 Can read can't write	
3 Can't read & write	
-99 Not applicable	
<b>B109. OCCUPATION</b>	0.1 PRESENT
1 Professional	
2 Executive/manager	
3 Business person	
4 Teachers/educators	
5 Sales personnel	
6 Clerk/service	
7 Skilled labourer	
8 Unskilled labr. (Farm)	
9 Unskilled labr. (Non farm)	
10 Owner of cultivated land	
11 Work on water (eg. fisherman)	
12 Home duties	
13 Armed services/police	
14 Retired	
15 Student / trainee	
16 Others	
17 Unemployed	
-99 Not applicable	
<b>B110. DO YOU HAVE A PRIVATE HEALTH INSURANCE ?</b>	
(0 No , 1 Yes)	
<b>B111. ARE YOU THE MAIN INCOME EARNER IN YOUR FAMILY ?</b>	
0 No I don't earn	
1 Yes	
2 No , but I contribute	

Page : 2 / 2

**APEDS DATA COLLECTION FORM - II**  
**OCULAR HISTORY**

STUDY ID NUMBER

A. HOUSEHOLD NO. \_\_\_\_\_

B. SUBJECT NO. \_\_\_\_\_

C. RESPONDENT NO. \_\_\_\_\_

301. INTERVIEWEE'S NAME: \_\_\_\_\_

302. DATE OF INTERVIEW: \_\_\_\_\_ (MM/DD/YY)

QUESTION	RESPONSE
303.1. DO YOU USE GLASSES OR CONTACT LENSES TO IMPROVE YOUR VISION ? (If Yes, Q304)	
Currently I. w/glasses (G)	
Currently using contact lenses (C)	
Can I. w/glasses & contact lenses (G)	
Never I. w/glasses / contact lens (P)	
Never I. w/glasses and (M) Go to 306.	
303.2. WHO PRESCRIBED YOU GLASSES/CONTACT LENS ?	
1. No visual aid	
2. Never	
3. Eye Doctor	
4. Ophthalmologist	
5. Optometrist	
6. Optician	
7. Others	
8. Don't know	

304. QUESTIONS FOR PRESENT GLASS WEARERS - Applicable / Not applicable

QUESTION	RESPONSE
304.1. WHY WERE YOU PRESCRIBED GLASSES ? (SPECIFY REASONS)	
304.1.1. COULD NOT SEE DISTANT OBJECTS CLEARLY (0 No., 1 Yes)	
304.1.2. COULD NOT SEE NEAR OBJECTS CLEARLY (0 No., 1 Yes)	
304.1.3. COULD NOT READ THE NEWSPAPER DIRECTORY (0 No., 1 Yes)	
304.1.4. HEADACHE (0 No., 1 Yes)	
304.1.5. HAD UNDERRATED CATARACT SURGERY (0 No., 1 Yes)	
304.1.6. OTHERS (0 No., 1 Yes)	
304.1.7. DON'T KNOW (0 No., 1 Yes)	

304.2. WHAT TYPE OF GLASSES DO YOU WEAR ?

- 1 Only for distance  
 2 Only for reading  
 3 Both for distance and reading  
 4 Don't know

304.3. DURATION OF WEAR	YES	NO
304.4. DO YOU WEAR GLASSES ALL THE TIME ? (0 No., 1 Yes)		
304.4.1. IF YOU DO NOT WEAR GLASSES ALL THE TIME SPECIFY REASONS.	Applicable / Not applicable	
REASONS	0 No., 1 Yes, 2 Most important	
304.4.1.1. DOCTOR TOLD ME THAT I DON'T NEED TO WEAR THEM ALL THE TIME		
304.4.1.2. I THINK I DON'T NEED TO WEAR THEM ALL THE TIME		
304.4.1.3. THE NUMBER IS INCORRECT		
304.4.1.4. THEY ARE UNCOMFORTABLE		
304.4.1.5. THEY ARE SCRATCHED		
304.4.1.6. THE GLASSES LIMIT MY PERIPHERAL VISION		
304.4.1.7. I LOST THEM AND CAN'T AFFORD TO BUY ANOTHER PAIR		
304.4.1.8. I LOST THEM BUT I AM GOING TO BUY ANOTHER PAIR		
304.4.1.9. THEY SLIP DOWN MY NOSE ALL THE TIME		
304.4.1.10. THEY MAKE ME LOOK UNATTRACTIVE		
304.4.1.11. I ALSO WEAR CONTACT LENSES		
304.4.1.12. I FEEL DIZZY WEARING THEM		
304.4.1.13. BECAUSE OF CALORIES		
304.4.1.14. TO GIVE REST TO MY EYES		
304.4.1.15. I DON'T WANT TO RELY ON THEM		
304.4.1.16. I DON'T LIKE THEM		
304.4.1.17. OTHERS		
304.4.1.18. DON'T KNOW		

**Over 8 million people needed medical aid if they were to carry out their normal activities independently, and an additional 800,000 required some type of visual aid**

Andhra Pradesh Eye Disease Study



A member of the fishing communities of Prakasam district being interviewed by an investigator. After LVPEI's efforts to set up Vision Centres in the area, all citizens of Prakasam have full access to eye care.



REAP in Andhra Pradesh and RAVI at Ghana and Rajasthan

# RAVI: THE STUDY PROCEDURE

This flowchart shows the standard procedure that was followed during the RAVI study at Prakasam district.



Visit to the clusters and selection of the individuals in their households

Survey procedures explained and informed consent taken



Near vision assessment (binocular)

Unaided near vision  $\geq N8$

Unaided near vision  $< N8$



Reassessment of near vision with age appropriate near addition lenses

Interview on barriers for uptake of eye care services



Recording of personal and demographic information



Visual Acuity (VA) assessment for distance

Unaided  
VA  $\geq 6/12$   
both eyes

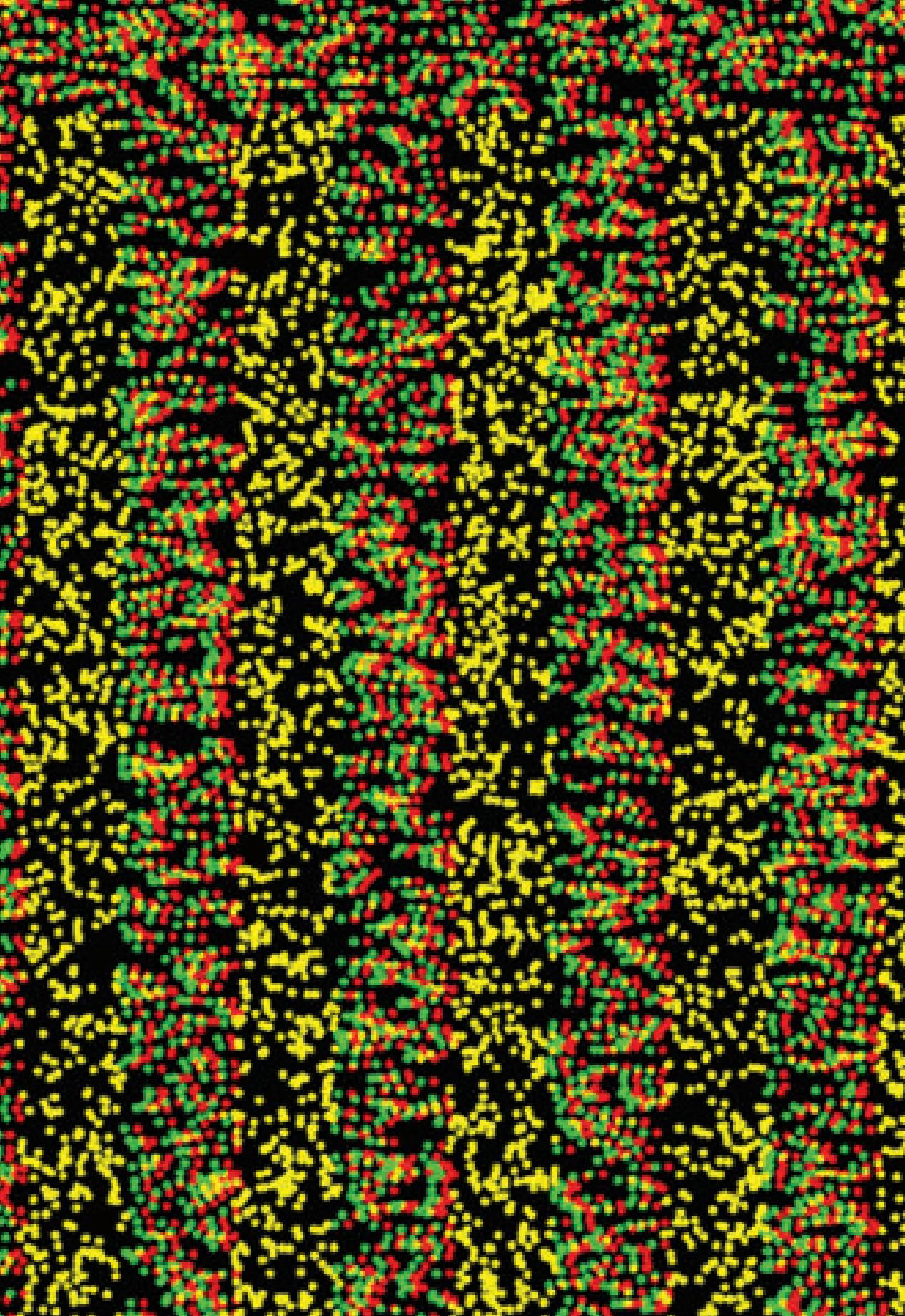
Unaided  
VA  $< 6/12$  in  
either eye

Interview on  
barriers for  
uptake of eye  
care services

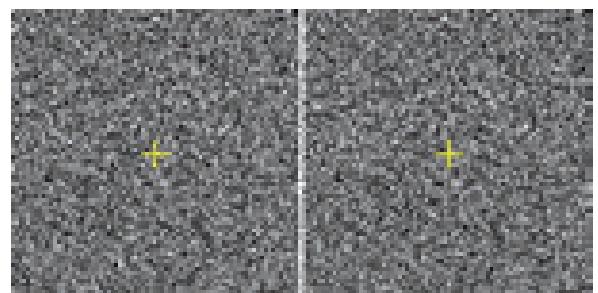
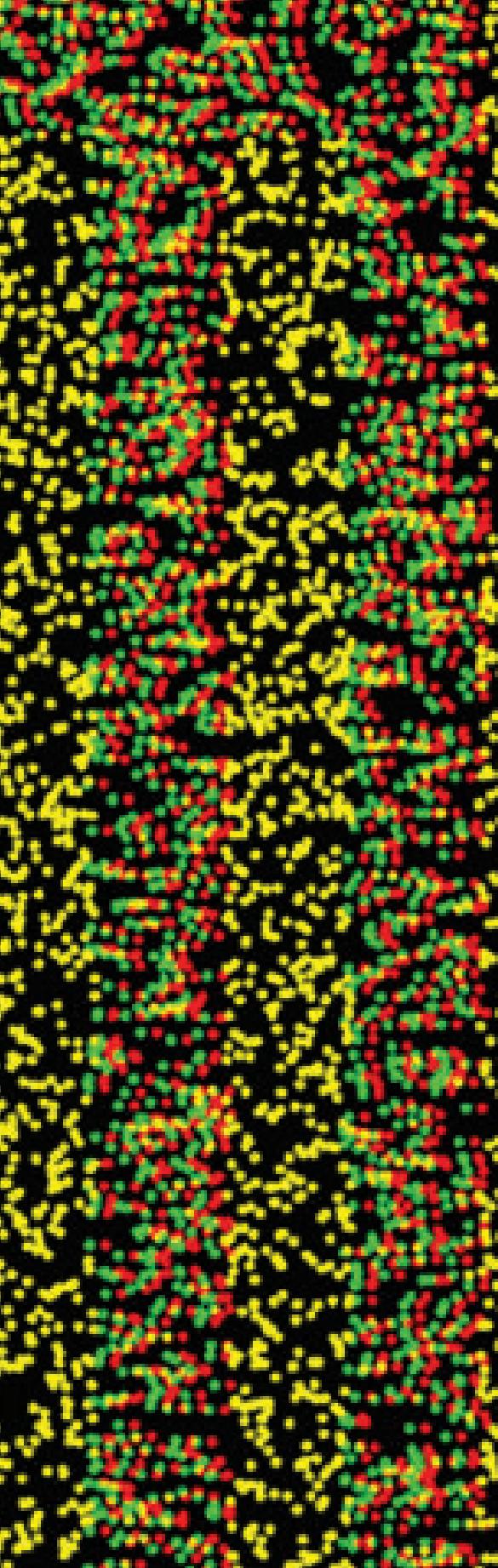


VA assessment with pinhole

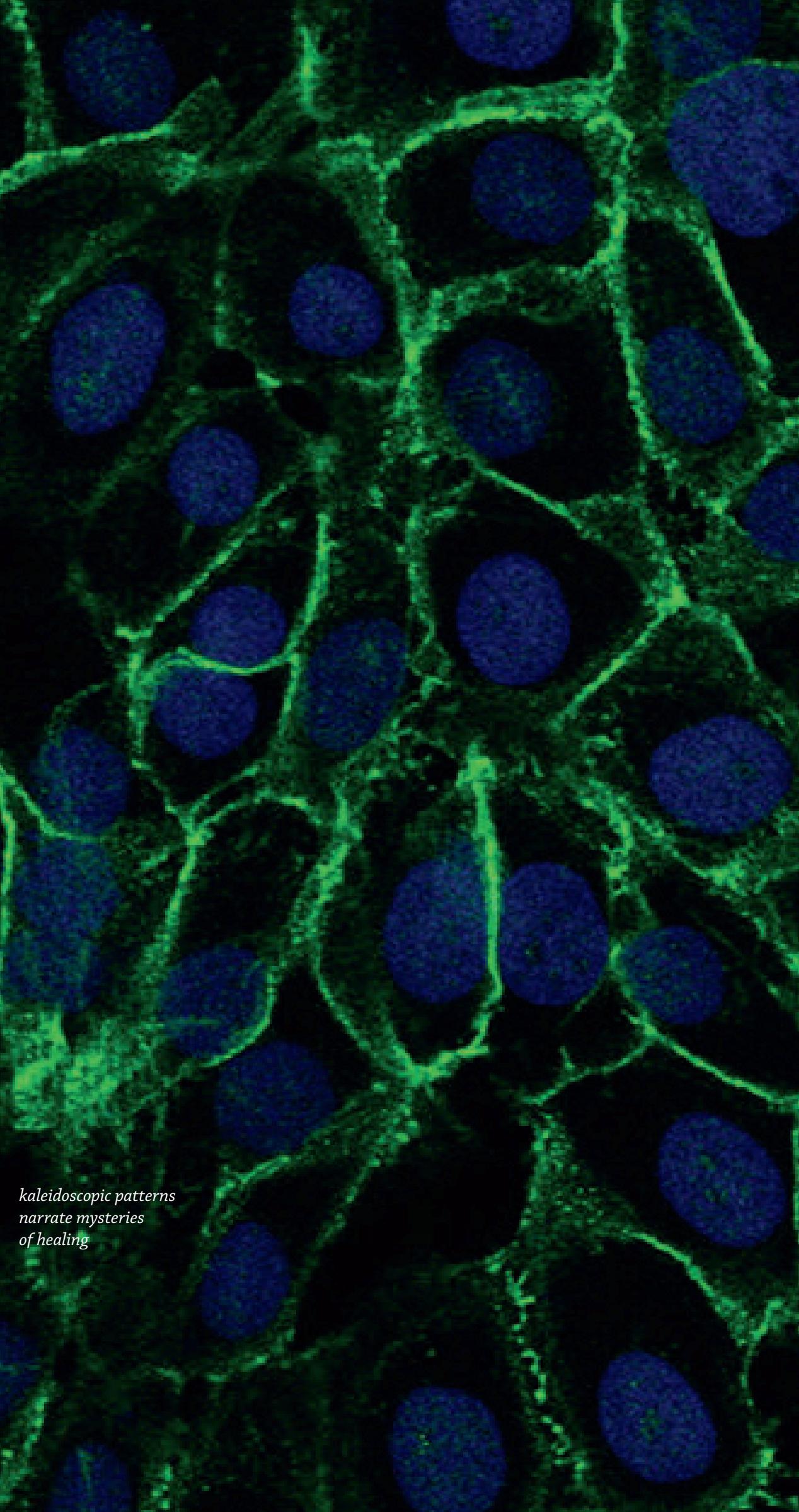
End of the  
examination /  
referral, if required



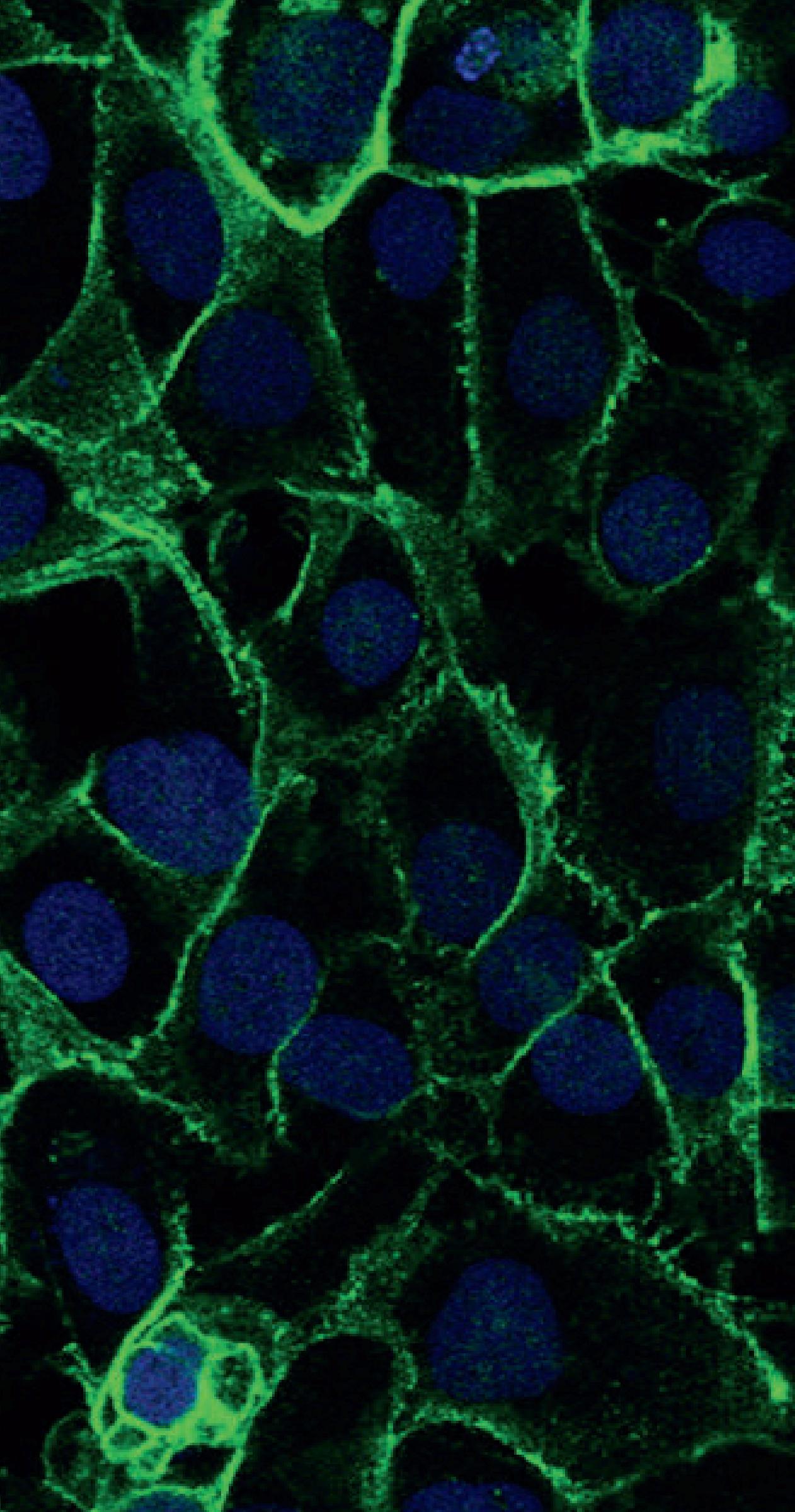
This image from the Visual Optics and Psychophysics laboratory is a stereogram that requires you to wear red-green goggles (red over the left eye) to see the 3D pattern. You will see waves that go in and out of the screen in 3D. The red-green goggles allow separate images to be projected on each eye and the visual part of the brain fuses these images to extract 3D information. This is the same technology used to create 3D movies – except that they use polarised goggles and we use red-green goggles.



Research at LVPEI is a study in contrasts. From examining the tiniest cell to the rehabilitation of a human being, from grassroot eye care to cutting edge technology that takes that eye care into the future, we scan every end of the multi-level spectrum of vision science, for now and tomorrow.



*kaleidoscopic patterns  
narrate mysteries  
of healing*





Laboratory Services established to begin basic research and aid in patient care and clinical research

Major collaborative projects initiated

Collaboration with Centre for Cellular and Molecular Biology (CCMB) commenced

Jhaveri Microbiology Centre set up

Indian Eye Research Group Meeting started in collaboration with CCMB

Clinical research project started

Dr. Gullapalli N  
Rao wins Ranbaxy  
Research Award  
for excellence in  
Clinical Research

Immunology  
laboratory set up

'93

'94

'95

'96

Andhra Pradesh Eye  
Disease Study (APEDS)

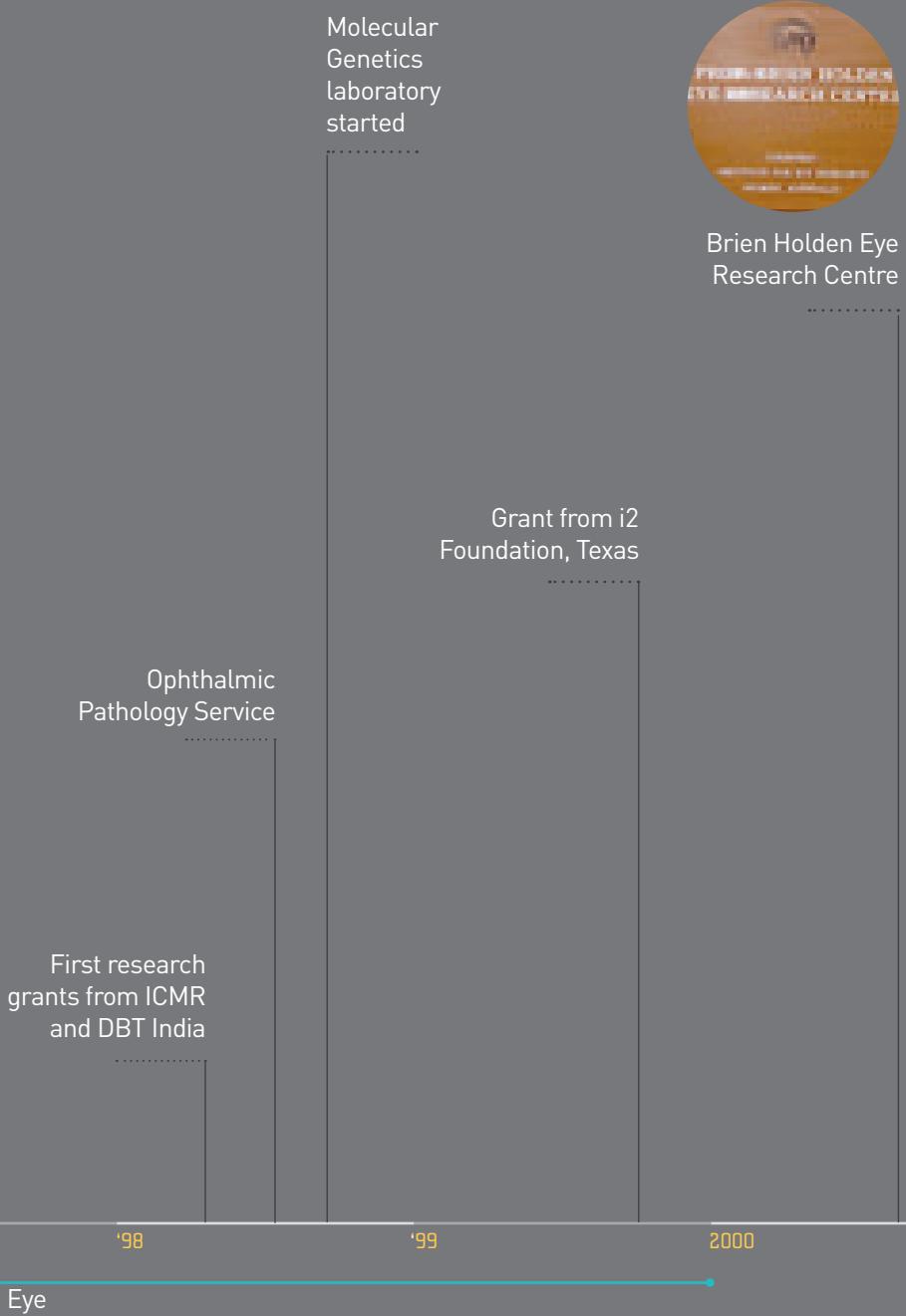


Photo-dynamic  
Therapy for  
Age-related  
Macular  
Degeneration

Sudhakar &  
Sreekanth Ravi  
Stem Cell Biology  
laboratory started

Bhatnagar Prize in  
Medicine given to  
Dr. Anil Mandal

First clinical case  
of limbal stem cell  
transplantation done

NIH GRIP  
research grant  
obtained

Padmashri to  
Dr. D Balasubramanian,  
Director of Research

Clinical  
realisation  
of stem cell  
research,  
with DBT  
support

Kallam Anji Reddy  
Molecular Genetics  
laboratory started  
with state-of-the-art  
genomics facility

'01

'02

'03

'04

HERF obtains  
Program Support  
Grant from DBT

Indo-Australian  
bilateral grants  
for genomics and  
stem cell research  
obtained

Bhatnagar Prize  
in Medicine  
given to  
Dr. V S Sangwan

National Technology  
Award given jointly  
to Dr. V S Sangwan  
& Dr. G K Vemuganti

Subhabrata  
Chakrabarti gets  
Clinician Scientist  
award of the  
World Glaucoma  
Association

Chitra Kannabiran  
gets Scientist  
award given by  
APCOST



Champalimaud  
Centre for  
Translational  
Research  
inaugurated



Visual Optics &  
Psychophysics laboratory  
started

Gullapalli N Rao  
awarded Kupfer medal  
from Association for  
Research in Vision and  
Ophthalmology (ARVO)

D Balasubramanian  
elected Fellow of the  
German Academy of  
Sciences

D Balasubramanian  
awarded the First  
Distinguished  
Alumni award of  
BITS Pilani

D Balasubramanian  
awarded  
the Lifetime  
Achievement award  
in Biotechnology

Shrikant  
Bharadwaj gets  
Ramalingaswami  
Fellowship

Subhabrata Chakrabarti  
gets Research  
Recognition award of  
the World Glaucoma  
Association

Bhatnagar Prize in  
Medicine given to  
Dr. S G Honavar

Electrophysiology  
laboratory started

Inderjeet Kaur gets  
BM Birla Science  
award in Biological  
Sciences

Wellcome Trust  
Grant for Affordable  
Health Care in India

Initiated the  
clinician-  
scientist training  
program

APEDS III  
initiated

'09

'10

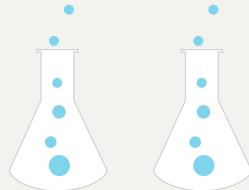
'11

'12

Novel rapid assessment methods field tested:  
Rapid Assessment of Refractive Errors (RARE) &  
Rapid Assessment of Visual Impairment (RAVI)

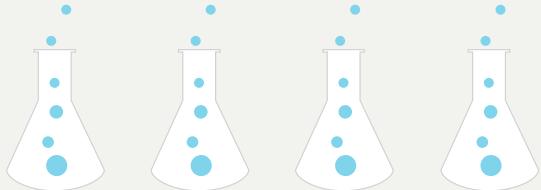
# GETTING A PERSPECTIVE

## RESEARCH



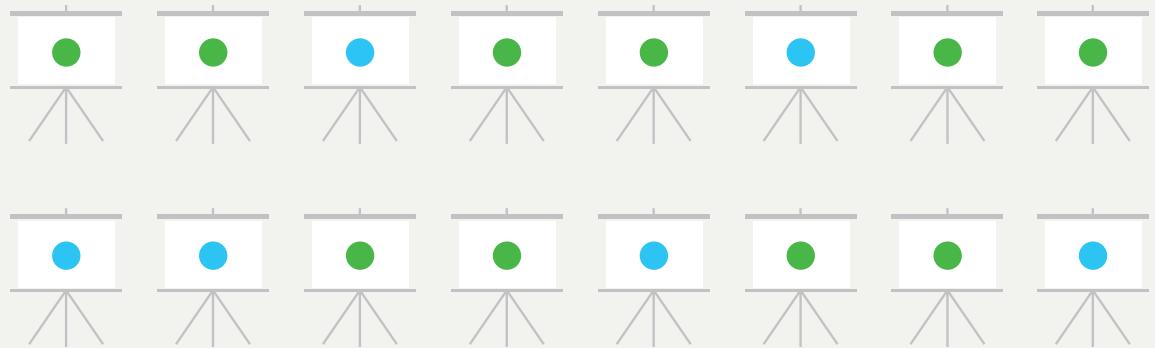
**27**

Ongoing clinical trials



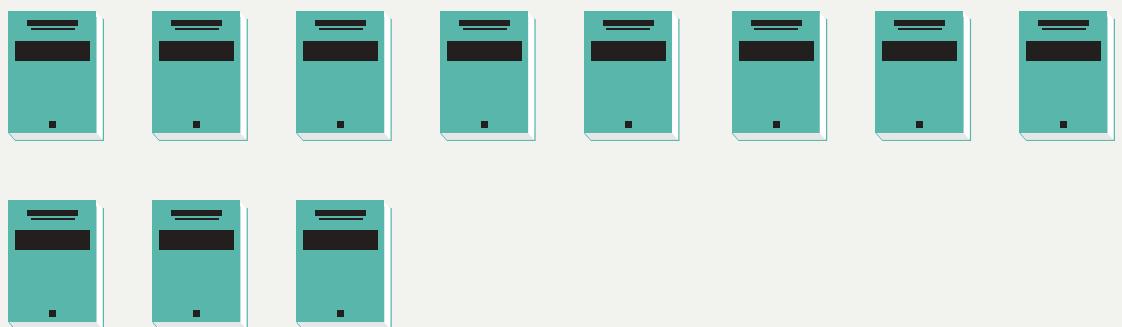
**50**

In-house and sponsored clinical trials completed successfully



**2955**

National and international presentations



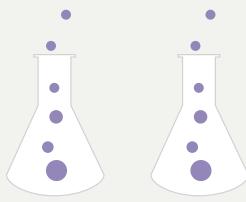
**1104**

Research publications



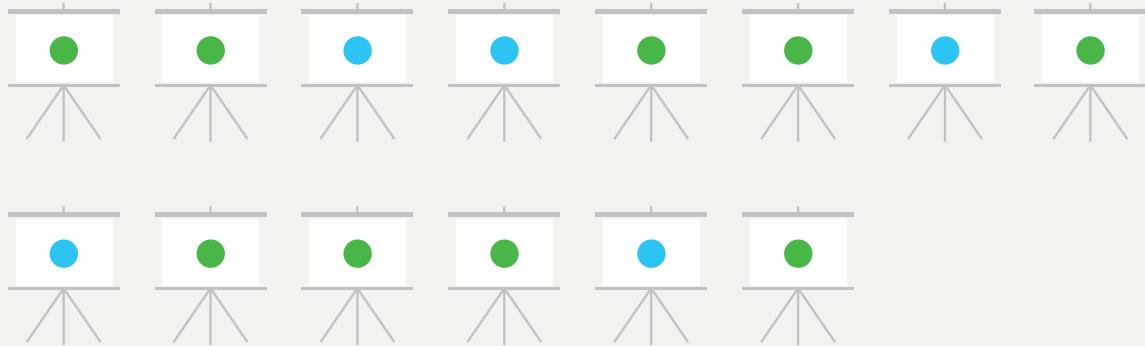
**16**

Ongoing extra-mural research grants



**29**

Completed extra-mural research grants



**70**

Major honours and awards



**29**

PhDs awarded

# GETTING A PERSPECTIVE

## RESEARCH



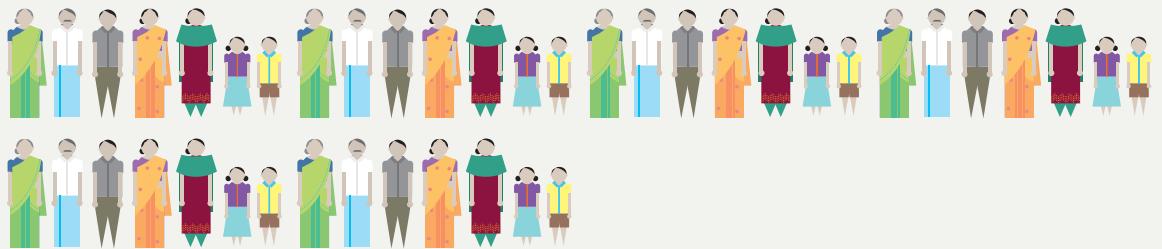
**10,00,000**

Blind persons in Andhra Pradesh  
in late 1980s

**1.5%**

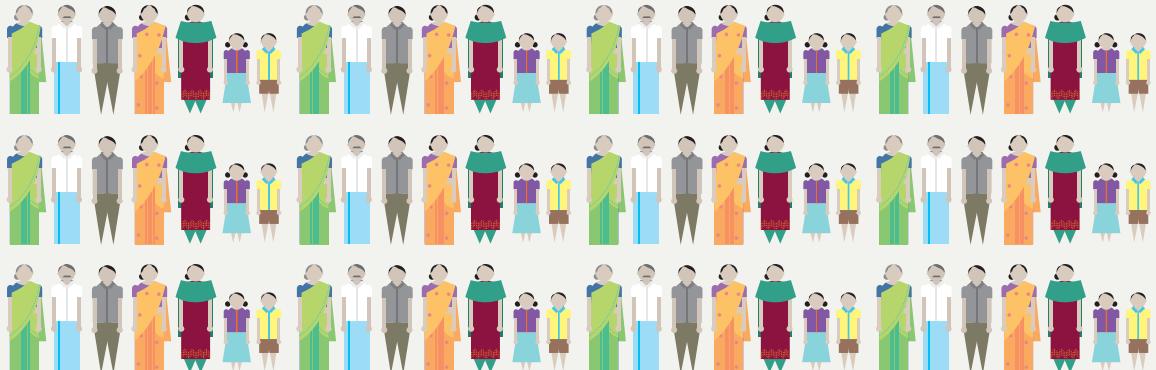
Prevalence of blindness in Andhra Pradesh  
in late 1980s

*The National Program for Control of Blindness aimed to reduce the prevalence of blindness to 0.3% by the year 2000.*



**7,14,000**

People in Andhra Pradesh with  
cataract related blindness as of 2000



**14,00,000**

Blind persons in Andhra Pradesh  
as of 2000

**1.84%**

Prevalence of blindness in Andhra Pradesh  
as of 2000

Source: APEDS I



**2,28,000**

People in Andhra Pradesh with refractive  
error related blindness as of 2000

Source: APEDS I



**Bench to Bedside:** Very simply, research at LVPEI doesn't just remain on paper, in the laboratory (bench) - it translates into medical solutions, product development and pharmaceuticals that make a positive difference, helping people see better.

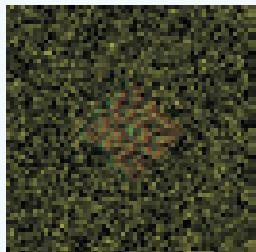
**Consanguineous:** Involving closely related individuals of the same blood or origin, like siblings or first cousins. Children born of consanguineous marriages are more likely to be affected by genetic diseases including eye problems.

**DBT India:** Without the support of the Department of Biotechnology, a grant making body under the Ministry of Science, many of our research projects would not have seen the light of day.

**Etiology:** We study the cause, not the symptom. Our etiological approach to research helps us get to the root of the problem and design solutions that nip it in the bud.

**Full Disclosure:** We respect human life and autonomy and ensure that each subject taking part in our research agrees to do so only after complete details of the study are explained to them.

**Good Clinical Practices:** At LVPEI we have the highest ethical standards. During research trials, we strongly safeguard the rights of our subjects, offering full disclosure, and treating them with care and courtesy.



**Magic Eye:** Magic Eye® images ignited the worldwide 3D craze of the 1990's. In these Magic eye stereograms, apparently

2D images show up as 3D when viewed a certain way (say, by crossing the two eyes or by using red-green goggles). This phenomenon happens because of our depth of perception. The work done in the Vision Optics and Psychophysics Lab at LVPEI uses the concept of Magic Eye stereograms to understand how a defocussed image due to refractive errors can hinder depth perception.

**RAAB:** Rapid Assessment of Avoidable Blindness is an epidemiological study where VA tests, torchlight and fundus examinations are conducted across a region. In a matter of weeks, without demanding extensive resources, RAAB determines prevalence of blindness due to curable cataract, refractive errors, cornea and retinal cause of vision loss among people above the age of 50.

**RACSS:** Rapid Assessment of Cataract Surgical Services is a low cost and relatively quick method used to determine prevalence of blindness due to cataract. A random

sample of people from the age group of 50 years and above undergo torchlight examination of their lens as well as visual acuity test with a modified Snellen chart. The survey also helps identify the reasons why people don't seek treatment and the visual improvement in those who do.

**RARE:** Rapid Assessment of Refractive Errors is a simple cost-effective survey that seeks to understand the prevalence of uncorrected refractive errors and presbyopia in the 16 - 50 year age group through Visual Acuity and pinhole tests. Spectacles are the simplest way to correct refractive errors. The study explores the use of glasses and why people who need to use them don't.

**RAVI:** Sanskrit for the sun. At LVPEI, the dawn of a new way. Rapid Assessment of Visual Impairment was a novel and quick method developed by us to assess the visual health of a large number of people, to determine

the presence of a problem. First tried in the Prakasam district in Andhra Pradesh.

**Relevance:** The cornerstone of our research approach is relevance. Relevance to clinical practice, to local conditions, to addressing eye problems of people most in need.

**Rigour:** This defines the way we work- in a comprehensive and thorough manner, leaving no room for inconsistencies.

**Shanti Swarup Bhatnagar Prize:** A national recognition of outstanding work in science and technology awarded annually by the Council of Scientific and Industrial Research - four LVPEI members have won this honour so far!

**Stem Cell Therapy:** At LVPEI, we manipulate the ability of stem cells harvested from the healthy eye of the patient to cure visual impairment through a procedure called SLET, or the Simple Limbal Epithelial

Transplantation. Our research takes this established procedure further, discovering and innovating to improve the procedure (for instance when both eyes of the patient are damaged), or inventing the teabag approach (see below).

**Teabag Approach:** An analogy used at LVPEI for a scientific or medical technique that can be used off the shelf, literally, and is ready for use, to be dipped into, at the point of need of a patient. We are working on growing cells on a newly developed synthetic polymer on the eye instead of an amniotic base, which eliminates problems like rejection, lab dependence and infections. The aim is to make this synthetic polymer membrane available off the shelf, just like a ready-to-use teabag!

**Wellcome Trust:** A UK-based charitable trust that helps organisations like ours stride forward in improving health with competitive grants.

During patient care,  
certain materials  
we needed were  
unavailable, or  
would have to be  
imported.

So, we thought, why  
don't we just make  
them ourselves?

Dr. Savitri Sharma

6.

# MADE IN INDIA

PRODUCT DEVELOPMENT



- 
- PIONEERING CARE . 398**
- INVESTING IN VISION . 400**
- AN EYE FOR AN EYE . 402**
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## PIONEERING CARE

### PRODUCT DEVELOPMENT

We were now established as one of the leading eye institutes in India. Our physicians were treating patients with a superior standard of care. Our research laboratories and clinical trials were coming up with innovations that propelled our treatment towards higher rates of success. We were training a whole new generation of eye care specialist personnel. All this was home grown, fully 'Made in India'. While treating patients, or helping them rehabilitate their vision and their lives, however, we felt a dearth of certain critical tools, and were often dependent on certain expensive imported materials such as special media to prolong the life of donated corneas. We decided to venture into manufacturing one such medium.

Thus the first product we made ourselves was the MK Medium. This is a tissue culture medium that preserves corneas collected from dead donors, which can then be used for keratoplasties. Ophthalmologists get a window of 4 days to ready patients for surgeries because of this product. Similarly, we started preparing amniotic membrane grafts used for reconstruction of the ocular surface. Both these products began to be used to great effect in the Institute. We even began to supply them all across India and to our neighbouring countries.

The next stage was to develop devices for rehabilitation of people with low vision. Simple, mechanical aids and specialised devices began to emerge from our departments in collaboration with local manufacturers, bringing down costs and making these very useful aids available to anyone who needed them, being especially effective with children who have low vision. The vision assessment products and stimulation tools that we created have become an integral part of our rehabilitation program at the Dr. P R K Prasad Centre for Rehabilitation of the Blind and Visually Impaired. Our innovative eye charts have been very successful: we developed 'E' charts for those who cannot read, English optotypes for those who can, and near vision LogMAR charts in Telugu. Since 2005, the LogMAR chart has been used to examine 22,000 patients at our centre.

# INVESTING IN VISION

## RAMAYAMMA INTERNATIONAL EYE BANK

At the Ramayamma International Eye Bank, a product we produce in-house helps give precious eyesight back to the blind. In order to prolong the life of the tissue while the patient is being prepped for transplantation surgery, the cornea is stored in the McCarey Kaufmann (MK) Medium, which allows it to be preserved for 4 crucial days. Earlier, the MK Medium was imported from the US, making its price prohibitive. In 1994, with the support of the Rotary Club of Hyderabad; Christoffel Blindenmission, Germany; and Sightsavers, UK; and with technical support from International Federation of Eye and Tissue Banks (IFETB), USA, LVPEI decided to start producing it locally so it would be cheaper and more accessible to eye banks in India.

1,69,417 vials of the MK Medium were manufactured between 1994-2011. Of this, around 30,000 have been used at the Ramayamma International Eye Bank, about 20,000 by international eye banks in Nepal, Bangladesh & some African countries, and the rest have been sent to other eye banks in India. Since RIEB has been able to make cornea presentation cost effective it has significantly helped increase the number of keratoplasties in India.

Extremely useful in the treatment of several ophthalmic conditions, especially those that have to do with the ocular surface, the Amniotic Membrane Graft (AMG) was another product developed in-house by LVPEI to avoid costly foreign imports and improve access to the membrane. The Ramayamma International Eye Bank started processing AMG in 1999 for its own use, and has processed nearly 12,000 till date. Thereafter AMGs were offered to outside facilities and surgeons on request.







*"Now I have a girlfriend. All is good.  
Earlier I was ignored by all. Now with  
my artificial eye, I am one of them"*

Vinay, 25  
An ocular prosthesis recipient



## AN EYE FOR AN EYE

### OCULAR PROSTHESIS CLINIC

Losing an eye is a traumatic event. A very good solution is the artificial eye, to replace eyes that have been partially or wholly removed due to tumours, infections etc. LVPEI has an Ocular Prostheses Clinic which was set up in 2002 to start making artificial eyes locally. We have custom fitted over 5500 artificial eyes since then. We realise that anyone getting an artificial eye would be worried about how natural it would look, and whether it would be comfortable and easy to care for. We understand these concerns, and make it our business to create "a good match, a good fit and great comfort."

Our Ocularistry services are integrated with the Ophthalmic Plastic Surgery division. Here, technicians employ knowledge of biology, ophthalmology and polymer chemistry combined with sheer artistry to painstakingly create an individual eye for each individual socket. The artificial eye will be an exact replica of the original eye in colour, shape, size and movement, down to the tiniest details like blood vessels. First, a wax model is made of the shell of the eye, and eventually replicated in medical grade polymethyl-methacrylate (PMMA). The colour of the natural eye is matched and hand painted on using biologically inert and safe natural pigments and threads, and kept intact with a clear coating applied right at the end.

Every month 75-90 ocular prostheses are made at LVPEI, and they cost between Rs 2000 and Rs 30,000. Patients can come back for follow-ups for counselling and polishing. The replacement eye restores symmetry to the face and confidence to the wearer to go out there and live his life fully.

# AIDING REHABILITATION

## LOW VISION AND STIMULATION AIDS

Low vision devices, or LVDs, are the tools of trade in low vision rehabilitation. They help patients to adapt and develop their functional vision for practical everyday purposes from reading the newspaper, or writing a letter, to cutting vegetables and cooking. For this, we have innovated non-optical devices, like Notex (our first vision adaptive tool, introduced in 1992), to help people identify currency notes. Others are simple objects like reading stands and lamps, and guides and devices to help people write, sign and read, make out cheques, and so much more, allowing patients to lead a fairly normal life.

Optical LVDs, like telescopes and magnifiers, provide some magnification, unlike standard spectacles, which only focus the image for the eye. Our materials help improve the child's eyesight, eye movement skills, eye teaming, focussing, depth perception, colour vision, peripheral vision, visual perception and processing, and the ability to integrate all of this information with their other senses.

The vision assessment charts we innovated were developed keeping the local needs in mind, like levels of literacy and local language. Used to test both distance and near vision, these charts are expensive if imported and naturally do not cater to Indian languages. So we created the tumbling Es and the Telugu reading charts, designed to record vision in the lower ranges. Generally for this, eye care professionals would use 'counting fingers or hand movements', a demoralising method which is not reproducible. We have seen our innovations help awaken hope in the hearts of patients right from the screening phase, because the products directly address the patient.



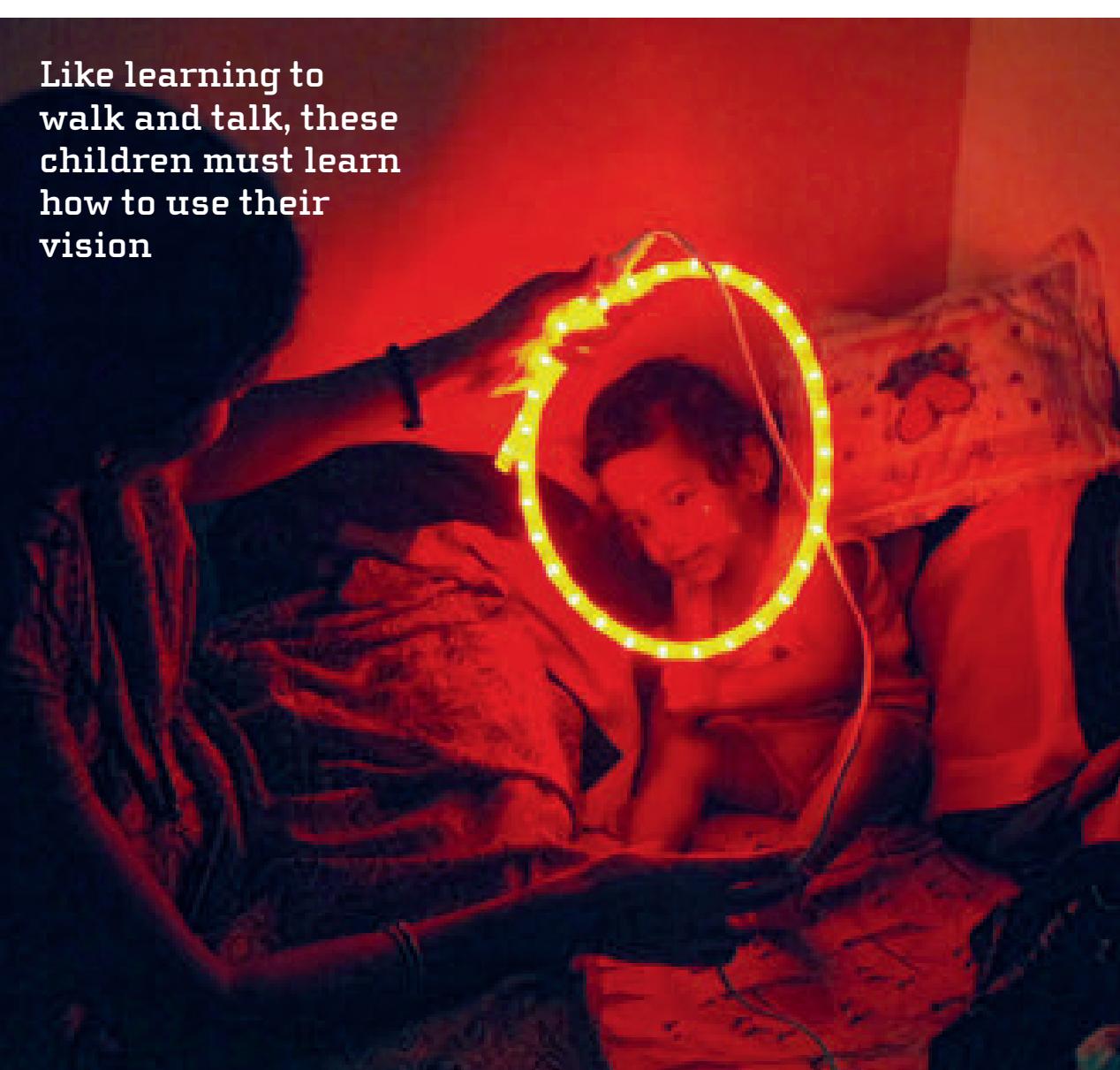
Distance Vision Charts In LogMAR Notation: to assess vision precisely. Developed for the first time in India, jointly with the Bausch & Lomb School.

Telugu Near Word Reading Chart: created at the Meera and LB Deshpande Centre for Sight Enhancement, to estimate the vision of children with impairment.

Low Vision Assessment Kit For Eye Care Professionals: for use in developing countries; each kit comes with an instruction manual.



Like learning to walk and talk, these children must learn how to use their vision



The ‘zari’ electrode we developed, using the gold thread woven into sarees, was an inexpensive, effective alternative to the established versions. For example, the standard DTL electrode had to be imported and would cost us \$55 each. With the LVP Zari Electrode, we brought this expense down to a little over \$1.



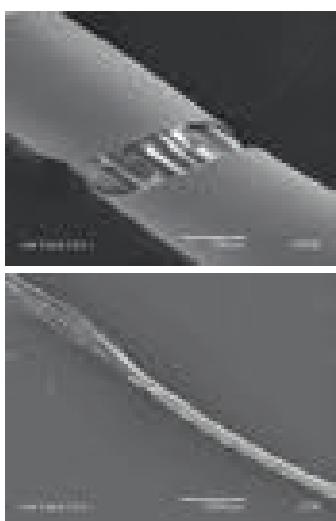
# WEAVING INNOVATION:

## THE LVP ZARI ELECTRODE

Electroretinography (ERG) is an eye test that detects any abnormal functioning of the retina. In this test, the rods and cones (the photoreceptors which sense light), and the connecting photo transmitters or ganglion cells (which carry the visual signals to our brains) in the retina are examined. The results of the test help diagnose and evaluate vision loss of different types, including diseases where the eye may look normal but cannot see. In order to conduct the ERG, very fine, high conducting electrodes are needed for measuring the electrical signals that are generated when light falls on the retina and is transmitted from there to the brain by the optic nerve. The most commonly used electrodes are either extremely expensive and need to be imported, or require sterilisation and are not disposable. Or they have a waiting period of 3-4 months, because they are custom-made in the US. So we came up with an alternative.

Using 'zari', the ubiquitous gold thread in sarees, LS Mohan Ram, our ophthalmic technician in the retina department, innovated a novel method of making the electrode needed for the ERG. 'Zari' thread has a nylon core covered with copper, silver or gold threads and is therefore a very good conductor.

Now at LVPEI, all adult recordings are done with our in-house 'zari' electrode. We also share this technology with other institutes across India.



*Scanning Electron Microscope picture of a 'zari' strand at 50 $\mu$ m and 500 $\mu$ m magnification.*

# SIGHTLINES

## PRODUCT DEVELOPMENT



MK (McCarey Kaufman) Corneal Preservation Medium laboratory at RIEB established with support from Rotary Club of Hyderabad; Christoffel Blindenmission, Germany; and Sightsavers, UK; and with technical support from International Federation of Eye and Tissue Banks (IFETB), USA



Ocular  
Prostheses  
Services

RIEB formally evolves as the International Training and Resource Centre for Eye Banking and Corneal Transplantation, with support from ORBIS International, USA, and Eyesight International, Canada.



LS Mohan Ram, ophthalmic technician in electrodiagnostics awarded the Dodt award at the International Society for Clinical Electrophysiology and Vision's annual meeting at Sydney for the Poster 'Recording of pattern ERG using indigenous Zari'

Amniotic membrane preparation at Eye Bank

'94      '95      '96      '97      '98      '99      2000      '01      '02

# SPOTLIGHT

## PRODUCT DEVELOPMENT

**4 Days:** That's how long the MK Medium can preserve a donated cornea.

**Amniotic Membrane:** A natural product that aids ocular surface reconstruction.



**ERG:** Just like an ECG (echo cardiogram) for the heart, an 'ERG' or 'Electroretinogram' is used to evaluate/diagnose and prognosticate many cases of visual loss, genetic retinal degenerative diseases and a large variety of diseases. To record and pick up the electrical signals from the different cells of the eye, very fine electrodes are used. Also see **Zari**.

**Hand Painted:** Every artificial eye is intricately painted by hand to match the wearer's normal eye.



**LVD:** Low Vision Devices or LVDs are tools that help people with poor vision do simple things like read the newspaper, count currency, thread a needle or cut vegetables.

**Made in India:** Once a repository of tradition and a cultural inspiration, India is now as much on the frontiers of technology and scientific development. Collaborations and symbiotic partnerships on all fronts thrive between India and the rest of the world. No longer is 'Made in India' a label synonymous with shortcuts in quality and unethical practices. Instead, it denotes inventors and creators rising to the challenge to produce that which meets global standards, yet caters to the unique local economic and social milieu. Product development at LVPEI is one such initiative, cost effective, excellent in quality, and accessible to everyone. Proud to be 'Made in India'.

**McCarey-Kaufmann:** The M and K in the MK Medium – two American professors of ophthalmology who first developed the revolutionary product in 1974.

**MK Medium:** The first product we developed at LVPEI - a tissue culture medium that could preserve donated corneas to be used for keratoplasties. This helped us eliminate costs of importing the product, making keratoplasties accessible to a wider public.

**NETRA:** Sanskrit for eye, Near Eye Tool for

Refractive Assessment is a low cost cell phone technology-based tool to identify refractive errors in people who



live in remote areas without access to eye care. LVPEI is involved in developing this device in collaboration with the Massachusetts Institute of Technology.

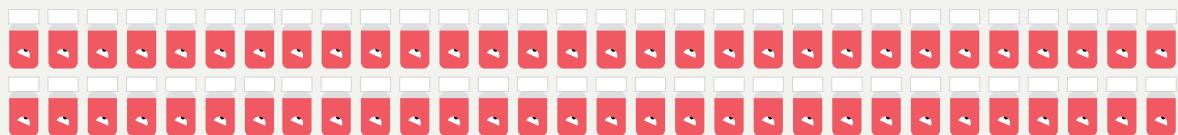
**RIEB:** The Ramayamma International Eye Bank set up in 1989.

**Stimulation Aids:** Tools that expose children with under par vision to high-contrast and bright images, to exercise their eyes and improve vision.

**Zari:** Metallic thread with a nylon core used to embellish sarees and fabric with hints of gold, silver or copper. Also used by LVPEI to make a home grown alternative to the electrodes used for the Electroretinogram (ERG).

# GETTING A PERSPECTIVE

## PRODUCT DEVELOPMENT



**1,69,417**

Vials of MK Medium produced by RIEB



**30,000**

Vials of MK Medium used by RIEB

**20,000**

Vials of MK Medium used by  
International Eye Banks

\$

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

**\$6**

Cost of RIEB's MK Medium

**\$75**

Cost of foreign manufactured MK Medium  
equivalents

\$

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$  
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**\$1**

Cost of LVP Zari Electrode

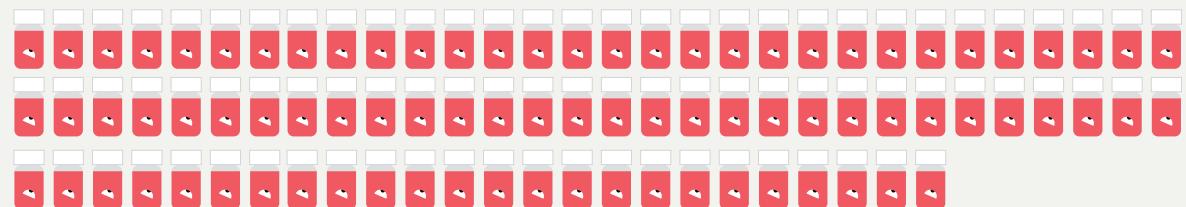
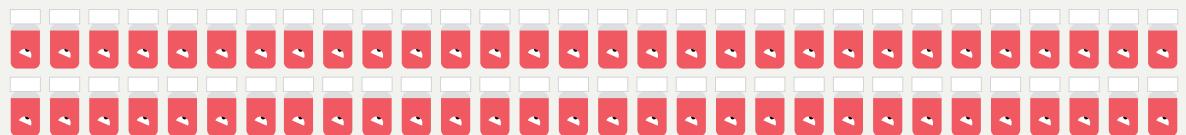
**\$55**

Cost of imported DTL Electrode



**10,616**

Children benefitting from Stimulation aids  
(June 1992 to March 2012)



**1,19,417**

Vials of MK Medium used by other Indian Eye Banks

*Figures from 1994 to 2011*



**5500**

Ocular Prosthesis fitted since 2002



**5000**

ERGs done with LVP Zari Electrode

(2000 to March 2012)



**10,095**

People using non-optical devices developed by LVPEI, since 1992

(June 1992 to March 2012)

We need to impact  
the reach, range  
and quality of eye  
care delivery.

For this, training  
and education are  
key.

Dr. Prashant Garg

7.

# SEEING TOMORROW

EDUCATION



**FUTURE SIGHT . 416**

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Everything that walks and works must be trained

GULLAPALLI NAG RAO

Our journey has been one of posterity. We want to stretch the boundaries of knowledge, make education the bridge between what is, and what can be. Our philosophy revels in the spirit of continuous learning and we strive to evolve an atmosphere where the excitement of new learning is combined with the challenge of sheer hard work, as our trainees and students who come from all over the world and India will attest!

Medicine and healing are about appropriate clinical care. But they are also about people, and lives, and moving stories. Through our education, fellowship and training programs, we hope to reach out to future generations, preserving the qualities of excellence, equity, empathy and efficiency that we are so passionate about. This can only happen if we pass on our knowledge and our philosophy, helping young professionals view the world of eye care from our perspective: 'so that all may see'. WHO agrees – we are a World Health Organization Collaborating Centre, steadily growing an army to fight blindness by educating professionals in medical and non-medical areas, in prevention, treatment and rehabilitation.

The framework for our education paradigm was built by Dr. G Chandra Sekhar, who was also the first Director of Education. Its administrative structure was set by Mrs. Pratibha Rao, who worked as a full-time volunteer to put the program in place. She also helped us put the systems of checklists for all processes in place for the CMEs. The credit for the impeccable CMEs that are run have their seeds in Mrs. Rao's contributions. Individual invitation letters along with detailed schedules to all invited faculty was one of the fundamentals that were initiated. Regular meetings with all the concerned staff became standard practice.

A highly accomplished multi-disciplinary faculty inspires and provokes, nudges and propels, encouraging a culture of enquiry and intellectual growth, using conventional methods of teaching as well as unusual analogies. "One morning all the fellows were introduced to the idea that ocular diseases can also be seen as a manifestation of nature... using diseases and natural phenomena described in Indian traditional mythology," says Dr. Chiara Morini, International Fellow.

LVPEI offers a wide variety of courses for new scholars as well as professionals. From cutting edge sub-speciality fellowships in ophthalmology and optometry, to mid level eye care personnel, eye care managers and community health professionals, our curricula run the gamut of the eye health spectrum. Hands-on training in basic clinical examination and surgical techniques runs side by side with courses for

ophthalmic technicians and ophthalmic nursing assistants. In 2009, LVPEI launched a postgraduate training program in ophthalmology affiliated to the Diplomate of the National Board.

One of our most innovative offerings are our low vision modules: the low vision awareness program (LAP), a 3-month short term fellowship in low vision and a 1-year long term fellowship in low vision. This is meant to train ophthalmologists, optometrists, rehabilitation professionals and other eye care professionals in providing comprehensive low vision rehabilitation services to visually impaired patients. These eye care professionals can achieve advanced competency, and upgrade their clinical skills in providing low vision care, acquiring the relevant tools to establish low vision services in their centres.

We are very serious about the need to constantly upgrade skill sets and expertise. Continuing education is offered in convenient short courses to practitioners from within our ranks as well as distant areas, enriching and widening their knowledge base. Long-term commitments like the Indian Contact Lens Education program which started as far back as 1990 with the Prasad Labs as the venue, are still flourishing. Besides this, regular guest lectures and our unique Global Lecture Series allows intensive interactions with the top physicians in eye care for students giving them an international perspective on the practice. At the same time, fellows get posted to Secondary Centres to learn about treatment and care at the ground level.

Non-medical courses like training for eye care managers and administrators are also part of our curriculum, with a 1-year management course for eye health administrators and 2-week courses for working professionals. Besides these, we train Vision Technicians who go into the remotest villages having learned skills for screening and detecting vision impairment. An innovative one-year course for school dropouts and unemployed youth combines classroom instruction and hands on training to create support staff for eye health.

The Bausch & Lomb School of Optometry and the Zeiss International Academy for Advanced Ophthalmic Education are important parts of our Education Centre, while the Pediatric Ophthalmology Learning and Training Centre ups the skills of our pediatric faculty and exposes them to the global scenario in their fields. The Ramayamma International Eye Bank offers courses in eye banking techniques in partnership with SightLife, Seattle, and Eyesight International, Canada. These have benefited 180 eye bank technicians and 103 eye donation counsellors besides 224 other professionals including eye bank managers and ophthalmologists.



Collaborations with international universities and institutes add to our pool of expertise considerably. Trainees and fellows are offered several opportunities to participate in national and sometimes internationals meets and conferences. Associations with a range of institutions means a great deal of exposure and chances for placements in exciting, challenging roles.

A knowledge-sharing program of education and research is underway with many universities in the USA, Europe and Australia, with active exchange of faculty lectures, case discussions and collaboration in both these areas. Our faculty benefit from the tradition of a 1-year program for advancement with the leaders in their area of choice, all fully funded by the Institute.

Lectures by experts in vision science, continuing education modules and information sharing is all a matter of technology now with the video-conferencing facilities in the Karam Chand Thapar Tele-Education Academy. Real-time interaction becomes possible between all 4 Tertiary Centres, as well as with our international associates, and learning acquires a seamless quality across geographies. Webstreaming of all our education programs has become routine. The latest addition is online modules of our community eye health programs.

The future holds great promise for our educational wing. Because of the demand from students within India and overseas, we have started more educational modules. Dr. Rao says, "LVPEI is expanding education by opening a centre in Bhubaneswar and in another 6 months we will open one in our Tertiary Centre at Visakhapatnam. In 2 years hopefully, we will triple our capacity for education."

**Our goal is to produce exceptional eye care professionals who achieve the right balance of 'hands, head and heart' and combine these with ethics.**

Dr. TARAPRASAD DAS







My initial days of association with the limbal stem cell project fuelled my interest in translational research, eventually leading towards my PhD. LVPEI provides a unique academic niche, allowing basic scientists and clinicians to interact up close and come up with holistic solutions.

K.Purushotham Reddy, Project Fellow, Brien Holden Eye Research Centre, 2003  
Post Doctoral Fellow, Retinal Stem Cell Biology and Regenerative Medicine Lab  
University of Nebraska Medical Center (UNMC)



*Video-conferencing class in progress at the Karam Chand Thapar Tele-Education Academy*

## PASSING THE TORCH

We are breeding a new generation of doctors and nurses, eye care administrators, and technicians. Teaching empathy, imparting information, and upgrading skills. Empowering local people to take on the mantle of health care in their communities. A diverse set of students, from Vision Guardians and Vision Technicians in villages, to PhDs, from ophthalmologists to high school dropouts, reflecting every level in the Pyramid of Care, all undergo training that has a profound effect on how, where, and whom our services reach through the Pyramid, and how well they are applied to the treatment of the visually impaired.



"Teaching and mentoring is an imbibed quality at LVPEI. Often there are inspirational moments during CMEs and Guest Lectures when the faculty get a chance to interact with their own old teachers, who had taught and mentored them 20 years ago, and it is amazing to see the mutual high regard and camaraderie that they continue to share even now," says Dr. G. Chandra Sekhar

Our training modules cover the whole spectrum of eye health, eye surgery, technical training, rehabilitation and low vision, and other ancillary activities. Making use of advanced technologies like video conferencing, the latest equipment and an evolved methodology, we make our courses stimulating and beneficial to our students. The trainee goes through a variety of practical learning experiences by working in different departments, like surgery, community health and the eye bank, coached by an experienced and qualified faculty. Our fellowship programs impart critical clinical skills, the ability to effectively diagnose and evaluate, the latest surgical techniques and patient care excellence. More than 10,000 trainees (and counting) from all across India, and many from abroad, have participated in our training programs.

A day in the life of a trainee or faculty fellow starts early. The morning instructional class takes place in the auditorium. Attendance is mandatory at 7 am. Journal Clubs, as also case presentations, are a part of the morning class curriculum for ophthalmology trainees. The largest part of the day is spent in the outpatient clinics or the operating rooms getting the real-time experience that is so vital to a true understanding of medical care. The day isn't over yet, though. After this it's time to study at our wonderful library, open round the clock. Dedicated wet labs with

modern learning tools, including simulators, 24-hour wifi, labs and clinics make studying and research a pleasure. Getting a position as a fellow at LVPEI is a highly competitive process. Despite the great demand, we start a training program only when patient volume, infrastructure and faculty are adequate. The philosophy is one of pure instruction.

Even when the facilities were not as advanced, the teacher-student connection and the passion for academia was strong. Recalls Dr. Subhadra Jalali, "There was no Pubmed, Medline or internet in those days to download journal articles. But we would request Dr. Rao for the article. And sure enough, a hard copy would arrive in a few weeks from Australia, USA or Canada by 'snail' mail."

#### THE FRONTLINE OF CARE

Hands-on workshops, field worker training and vocational training often take place on site, in the field. Here, too, the principles we follow are maintained, keeping the standard of excellence consistent: the shared vision is to make a difference by increasing the pool of knowledge.

At the community level, young people from the rural sector are trained to oversee the eye health of the community, becoming the bedrock of the LVPEI Pyramid of Care. Many girls from rural areas who could not finish school or go to college are trained as Ophthalmic Nursing Assistants (ONAs) thereby empowering them with skills and enhancing self-esteem. The Vision Technician course was started because we realised that 80% of India lives in rural areas, and that uncorrected refractive error accounts for 60% of avoidable and unnecessary blindness. To deal with this, we surmised, we did not need the expertise of highly educated ophthalmologists or optometrists, who are, anyway, not available for rural service. The Vision Technician course takes in high school graduates selected from their respective communities, so the people they screen identify them as their own. We train them exhaustively for 1 year at LVPEI. They are then posted to the Vision Centres, armed with the remarkable ability to detect potentially blinding conditions like cataract, glaucoma and diabetic retinopathy, even addressing Vitamin A deficiencies. They are trained to assess refractive error and dispense glasses. In fact, the Vision Technicians are our vanguard, key in achieving our successful statistic: the correction and treatment of a significant portion of all avoidable blindness in Andhra Pradesh.

# LEARNING TO FLY

## FIVE STORIES OF EDUCATION AT LVPEI

1 .



*Working at a peripheral centre in the village was a metamorphosis of life for me, from being a fellow to becoming the head of the centre. I was solely responsible for the patients' diagnosis and treatment, managing the patients within limited resources, upgrading my clinical thinking and surgical skills in complicated and uncomplicated cases. I had to learn administrative skills related to the functioning of the hospital, management of the staff, operation theater, sterilisation, laboratory, and admission processes of the primary level of the health pyramid. I understood the villagers' inhibitions about going to the big city for treatment and was happy that I could treat them at my centre. The disciplinary approach at LVPEI has made me meticulous and scientific in addressing various eye diseases and I feel proud to call myself a complete ophthalmologist.*

Dr. Trupti Kadam  
Comprehensive Fellow

2 .



*If one works for 5 years, and shows commitment towards one's work, LVPEI offers the opportunity to grow, to pursue higher studies including a PhD. This system is unique as you get to work and study simultaneously. When I expressed an interest in public health to the Chairman in one of the meetings, he gave me a part time position at ICARE to allow me time for study. I went to the London School of Hygiene and Tropical Medicine for my higher education in Public Health in Eye Care. Since then there has been no looking back. The satisfaction in everything that I do, and the feeling that I am part of the team that is bringing change among those who are underprivileged, remain my motivating factors.*

Dr. Srinivas Marmamula  
Associate Optometrist  
Public Health Specialist, ICARE

The path towards success is paved with fables. LVPEI has fostered the growth of many people towards a better life and livelihood through training programs and the outlook that education must be a priority. These people all have stories to tell. Stories of changed lives, or opportunities, and ultimately, of giving back to society in gratitude for where they are today.

3 .



*You see patients, note down findings, assessments and what you think the diagnosis is. There is always direct interaction with the teachers. Even in surgery, the trainers constantly make sure you are on the right track. Always hands-on with guidance. At one point, I did about four days of the ROP screenings. I was a little scared initially with the babies – they are so small and soft and non-cooperative. Dr. Padmaja really taught me how to handle the infants, how to manipulate the babies' heads to see what exactly I needed to see in the eye. She was there beside me and made me do it again and again until I was comfortable doing it!*

Dr. Ankita Nema  
Comprehensive Fellow

4 .



*There is a thing of incomparable value that is offered to the fellows at LVPEI – better than the highest possible 3D resolution spectral domain OCT, better than the latest-model phaco machine, better than any DVD collection in the library. That is the opportunity to meet the most extraordinary people. The fellows here are also treated to an international ambience with guest lectures by luminaries from all over the world. Only in a setting like LVPEI, in only four months, could I talk of research opportunities in Singapore. I had coffee with the smartest specialists from Brazil and met clinical researchers from the Bascom Palmer Eye Institute. I learnt of the latest advances in regenerative medicine directly from the researchers. At LVPEI I met the most prominent Italian researcher in limbal stem cells: Prof Graziella Pellegrini, whose lab is located less than 200 km from the hospital where I currently work in Italy!*

Dr. Chiara Morini  
International Fellow



Shaheen, 29, lives in Mahadeyunipet Village.

Soon after finishing her Vision Technician Course with LVPEI's Bausch & Lomb School of Optometry, she got married.



A mother of two, she continued her education, going on to complete a 3 year Diploma in Ophthalmic Techniques while continuing to work as a Vision Technician in our Bijinapally Vision Centre.

5 .

*"I always wanted to stand on my own feet. Like most girls in my community, I got married and started a family – but I wanted to do more than that. I continued my studies and now, I enjoy my work – I meet new people, help them, and am able to contribute to my daughters' education. Today, I am a Vision Technician. Maybe, one of them will become a doctor!"*

Shaheen  
Vision Technician





# SIGHTLINES

## EDUCATION



Community Based  
Rehabilitation:  
Field workers  
Training programs

Training of TEAMS  
for pediatric eye  
care for domestic  
and international  
centres starts  
with support from  
ORBIS

First public lecture  
series in Retina  
commence with the  
Syamala Bhaskaran  
lecture series.

Surgical wet  
laboratory

Fellowship in Retina  
& Vitreous and  
Glaucoma started at  
Kallam Anji Reddy  
campus

Hands-on  
training Course in  
Phacoemulsification,  
now funded by Alcon

'93

'94

'95

'96

'97

# SIGHTLINES

## EDUCATION



Bausch & Lomb School of Optometry established at Kismatpur campus, outskirts of Hyderabad, for Bachelors in Optometry in collaboration with BITS Pilani

Diploma in Eye Health Management course offered. 86 candidates trained till 2011



Hostel for trainees

Long term and short term fellowship programs in vision rehabilitation

Diploma in Community eye health course offered. 143 trained candidates till 2011

Fellowship in Pediatric Ophthalmology started at Kallam Anji Reddy campus

Eyesight International lends its support with training courses for eye bank professionals

Fellowship in Ophthalmic Plastics and Ocular Oncology

WHO-IAPB program for Pediatric Ophthalmology training

Vision Technician (VT) course started

Low Vision programs started

1998

'99

2000

'01

'02

First BLSO student selected for PhD program with full scholarship

The ORBIS-ESI-LVPEI International Training and Resource Centre for Eye Banking & Corneal Transplantation established

BSc course in Ophthalmic techniques was started in affiliation with Indira Gandhi National Open University (IGNOU) New Delhi. First batch of students admitted at LVPEI Bhubaneswar

The G Chandra Sekhar Distinguished Chair of Education is initiated

Program Management and Evaluation course offered. 94 candidates trained till 2011

'03

'04

'05

'06

'07

# SIGHTLINES

## EDUCATION

Fellowship in Comprehensive Ophthalmology started at GMR Varalakshmi Campus, Visakhapatnam and LVPEI Bhubaneswar



Shri Karamchand Thapar Tele education academy started connecting LVPEI to other centres of excellence

First Global Leaders' lecture was delivered by Harry Quigley of Wilmer Eye Institute at Johns Hopkins, USA.

First BLSO alumni awarded PhD (followed by 14 till date)

Residency in Ophthalmology started

Education centre at KAR Campus was named as Mark Nathaniel Thadikonda and Vijayamma Nannepaga Centre for Eye Care Education

Masters in Community eye health course offered in collaboration with UNSW. 23 candidates trained till 2011

Teachers Training Program on inclusive education

Subspecialty fellowships started at GMR Varalakshmi Campus, Visakhapatnam and LVPEI Bhubaneswar

Dr. Ramachandra Pararajasegaram Community Eye Health Education Centre started

Education Centre at GMR Varalakshmi Campus, Visakhapatnam and LVPEI Bhubaneswar named Pathak Center of Eye Care Education

# SPOTLIGHT

## EDUCATION



**24/7:** Open whenever you need it, the library at the Hyderabad campus has a comprehensive collection of books, journals and learning resources and is operational round the clock, seven days a week.



### 7 am Morning Class:

When most of the world is just getting ready for the day at 7 am, at LVPEI the day has already begun with all the faculty fellows and trainees running to attend the morning class. The doors of the auditorium are closed at 7 am. Late comers not allowed. The case presentations and journals clubs that are a part of the morning classes are one of the best parts of our courses.

### Basic Ophthalmic Diagnostics Program:

This one month program supported by ZEISS exposes postgraduate students to the basics of ophthalmology, giving them hands-on training

in examining patients instead of mere textbook learning. The idea is to enhance training of residents in India.

**BLSO:** Bausch & Lomb School of Optometry is a premier school offering a bachelor degree in optometry in collaboration with the Birla Institutes of technology and science. The school was built with generous help from Bausch & Lomb USA, the global leader in eye health products.



### Comprehensive

**Fellowship:** The only program in the country where a fellow gets a chance to manage a Secondary Centre individually, gaining surgical skills as well as leadership skills and an insight into rural India.



**CME:** Continuous Medical Education – all the workshops and seminars held at LVPEI to help

doctors learn more in a field where there's so much more to discover. In January 1988, we had the first CME in Cornea, with the Harvard - Massachusetts Eye and Ear Infirmary group as visiting faculty. In 1994, the LVPEI retina team created the Retina Congress, which also led to hosting the World Retina Congress in the year 1999. From then on to this day, the Institute hosts upto a dozen such events a year in all sub-specialties with participation from all over the world.

**Eye Pep:** A CME of one week's duration dedicated to residents in ophthalmology across the country. Various subject specialists of our organisation teach and interact with residents, and help resolve their queries.



### Global Leaders' Lecture Series:

Real time video conferencing with global leaders in ophthalmology and vision sciences, a unique opportunity for both faculty and trainees of the Institute to learn from the world's best.

Possible because of generous support from Mr. Vikram Thapar.

**ICLEP:** Organised in association with Bausch & Lomb, the Indian Contact Lens Education Program is a long running one. It is designed to upgrade the skills of contact lens practitioners by introducing them to the latest advances in the field.



**Journal Club:** Held every Monday as part of the Morning Class, JC as it is popularly called, is a discussion attended by hundreds of ophthalmologists across the country and abroad, who tune in to the live webcast moderated by a faculty member. Only topics considered worthy make the cut for every JC and the discussion is governed by strict ground rules. From the simple "don't sleep during the session" and "don't hog the microphone" to serious matters like not naming any patient, referral doctor or making the discussion personal, participants are expected

to maintain decorum befitting an elite group like theirs. Material used from sources like the Internet can be done so only with permission from the author and everyone refrains from scathing criticism, making comments with a racial/ gender bias or straying from the topic.

**Low Vision:** Besides having a low vision centre attached to an eye institute, we offer training programs in Low Vision and Rehabilitation.

**No Drinking:** Cigarettes, alcohol and casual clothing are strict no's on any LVPEI campus.



**Ophthalmic Nursing Assistants Training:** Since most girls trained in general nursing do not find ophthalmic nursing attractive we initiated a 2 year program unique to LVPEI to train nursing assistants in basic eye care, care of admitted patients as well as assisting in various ophthalmic surgeries

**Polished Apple Award:** Presented to the 'favourite' teacher at the

annual event for post-graduates "Eye-PEP".



**Sunday Treat:** Learning goes much beyond the classroom in LVPEI – Dr. Rao's Sunday Treat was a tradition in the cafeteria where students and fellows could share their hopes, challenges and experiences with him. The air would be full of promise and possibilities, the mood further elevated with the Treat consisting of a special breakfast menu from among puri-aloo, sevaiyan pulao, mysore bajji, big sized vadas; aloo bondas, pesarattu etc. Employees residing in the vicinity sometimes dropped in with their little ones to enjoy the special treat. This practice later discontinued as the number of employees increased.



**Tele-education:** With video conferencing facilities, all three Tertiary Centres and

our Centre of Excellence are connected to each other and with our international associates allowing real time interaction, erasing geographical boundaries in sharing knowledge.

**Vision Technician Course:**

A 12 month course where students are trained to assist ophthalmologists in the clinic, participate in population screening programs and work independently at Vision Centres.

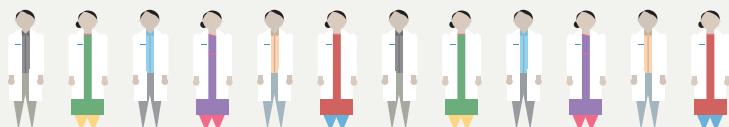


**Visiting Professors:** A programme through which faculty of international repute from across the globe are invited to the Institute to share their knowledge with our trainees and faculty.

**Zeiss International Academy for Advanced Ophthalmic Education:** a.k.a LVP Zeiss Academy, the institution offers a hands-on training program on diagnostic techniques in each specialty - Cornea, Retina and Glaucoma, with basic and advanced courses.

# GETTING A PERSPECTIVE

## EDUCATION



**300**

Indian long term ophthalmology fellows trained



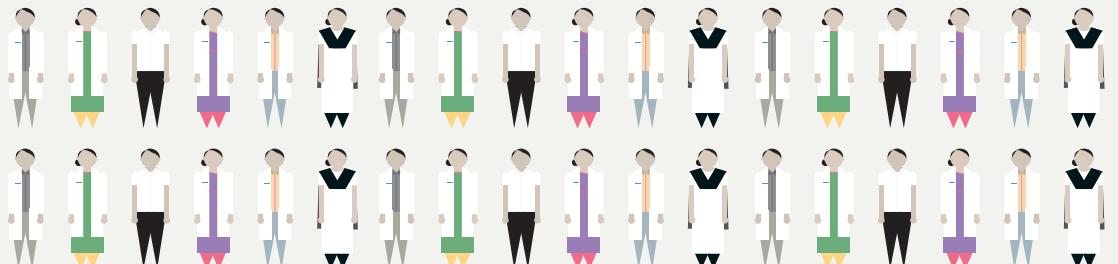
**57**

International long term ophthalmology fellows trained



**1,325**

Indian short term ophthalmology fellows trained



**1,384**

Optometry students

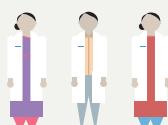
*This includes only long term programs like fellowship, Bachelors in Optometry, Diploma in Ophthalmic Techniques and Vision Technicians' Course*



**346**

Public health & management candidates trained

*This includes all four courses offered at ICARE from 1998 to 2011 – Diploma in Community Eye Health, Masters in Community Eye Health, Diploma in Eye Health Management and Program Management and Evaluation course*

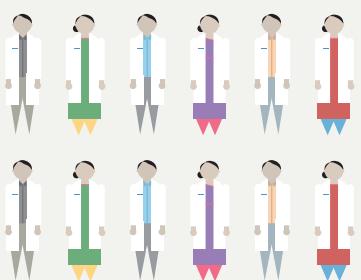


**78**

Eye care professionals (national and international) underwent the short term fellowship in low vision

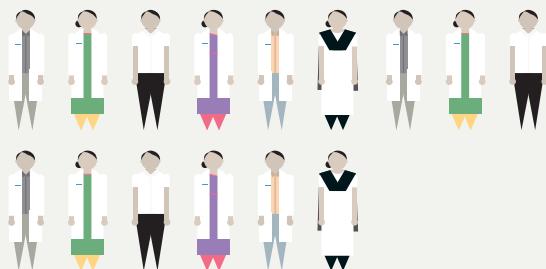
**1**

Ophthalmologist in-training (international) underwent the 1 year fellowship in low vision



**139**

International short term ophthalmology fellows trained



Long term Fellowship 1989-March 2012  
Short term Fellowship 1990-March 2012  
Optometry Programs 1991-March 2012



**268**

Ophthalmic nursing assistants from 2001 till March 2012



**15**

Research students currently enrolled



# LOOKING AHEAD

*As Williams Owen Jr said, ‘we are going to tear down our walls’, which is to say that we are going to care for our communities, to make sure that diseases are prevented and disparities in health care go away.* GULLAPALLI N RAO



Our inner vision is never flawed. Our mind's eye sees our truth and defines our actions. This inner sight is fed through another living source: the eyes. Our eyes, although near magical in their intricate workings, are not infallible. At LVPEI, we fight every day to keep the eyes as healthy as possible, ensuring the mind a clear, steady stream of visual gifts.

Our effort to transform eye care has taken on a life of its own, grown by leaps and bounds, and become a large-scale battle against blindness. And we are at the vanguard of that battle, attacking the enemy in all geographies, whether urban or remote, using methods simple to cutting edge, and investments from the minuscule to millions. We thrust and parry from different angles: prevention, diagnosis, treatment, research and rehabilitation. Our strategy is well defined – excellence, equity, and efficiency. And our weapons are powerful – talent, education, technology, and empathy.

The analogy with war is not misplaced. There are countless people with visual impairment in India – our task is huge, much is at stake. So we venture into uncharted territories as a catalytic force in global eye care. We involve ourselves in the future of eye care at national and international levels, engaging with planning, capacity building and policy development efforts for the prevention of blindness. We grow organically, with expanding patient volumes, increased expertise in every area whether medical or administrative, and a wider reach, inwards towards more remote communities, and outwards, towards international collaborations. And constantly, we evaluate and examine that growth against organisational and environmental change, using participative and consultative processes.

## THE INSPIRED AND THE INSPIRING

They come from different parts of the country, they visit from distant corners of the world. Some are partial to bow ties, some others to crisp handloom saris. One hums RD Burman classics while Tagore inspires another.



**Avinash Pathengay:** The quiet and efficient Dr. Pathengay dons at least two kinds of gloves – white for retina surgery and green with the smell of earth for the manicured gardens of our centres in Visakhapatnam and Vijayawada.

**Shrikant Bharadwaj:** A Ramalingaswami Fellow, friendly Dr. Bharadwaj is known to make the esoteric world of psychophysics as much fun as his barbecue evenings at home!

**Harsha Rao:** The unassuming glaucoma and biostatistics specialist who converts meaningless numbers into meaningful graphs, is also a gifted Hindustani classical vocalist who can strum the mandolin too.



**Anil K Mandal:** The Rabindra Sangeet aficionado and poet, the lovable 'doctor uncle' to his little glaucoma patients, he will even accompany his patients to the ground level portico to see them off, throwing his appointment schedule into disarray and sending the administrators into a tizzy.



**Subhadra Jalali:** Fondly called 'Aapa' [elder sister] by her patients, the retina specialist is invariably the first one on the dance floor at any event; shaking a leg with a child-like enthusiasm that belies her surgical and academic prowess.



**Gullapalli N Rao:** Immaculate Dr. Rao can make doctors and students quiver as easily as he makes them smile. There's no space for mediocrity in his world and he generously helps each and every one in LVPEI excel in their field. A stickler for perfection, you will never find a hair, crease, bow tie or paper out of place in his presence. LVPEI began with his vision and is driven by his infectious passion.



United by a singular vision, our diverse doctors, nurses and staff come together every day, soldiers marching towards our cause. The shape of LVPEI is drawn out and filled in by them: their specialties, personalities and talents adding to the sum of the whole. Meet a few of our people.

**G Chandra Sekhar:** An officer and a gentleman, he thinks not just once but twice before saying or committing to anything. GC's best asset is his crinkling, boyish smile, which has remained unaltered over the years.



**Nagamani:** Whether in the cafeteria or behind her desk at patient care service, soft-spoken Nagamani is a picture of sincerity and dedication.



**Vanita Ganesh:** Productive, punctual, patient and persistent, Vanita is a true perfectionist. She has been with LVPEI for 25 years, during which she has never been late to work, not a single day!



**Chitra Kannabiran:** The smiling taskmaster and first scientist on board, she has an inherent passion for social activism coupled with a sharp sense of humour.

**Subhabrata Chakrabarti:** The scientist is as much at home sipping black coffee and listening to Bollywood classics in his lab as he is sitting on the boards of international scientific associations, journals and funding agencies.



**Santosh Honavar:** Revered by his students, the mentor par excellence organises national and international conferences with all the meticulous precision of an ophthalmic plastic surgeon as well as orbit and ocular oncology specialist.



**Raja Narayanan:** Often mistaken for a student because of his boyish looks, Dr. Narayanan's patients will go to no one else when it comes to macular care. The doctor with an MBA is famous for his sophisticated presentations at monthly faculty meetings and he won't miss his evening visit to the temple next door.

**Vijaya K Gothwal:** The 'colonel' can fool with her stern demeanour, but it's only camouflage. She is a softie inside, as her low vision patients will vouch. She is also an academician who can churn out phenomenal output at the click of her mouse.

**Usha Gopinathan:** This gentle, tentative and almost timid soul shows a steely grit when it comes to getting things done. A multifaceted personality that can effortlessly fit into any role.



**D Balasubramanian:** Affable, erudite and a thorough gentleman, no one remembers seeing Balu lose his temper or smile. Equally at ease with children and Presidents, he generously shares his scholarship with students and younger colleagues.



**Savitri Sharma:** Her meticulous scientific work is as efficiently managed as her graceful saris. The undeterred professional allows nothing to distract her from her microbes and publications. The amiable achiever is a role model for many in the institute.



**Prashant Garg:** Timid when he first joined as a Fellow, PG has blossomed into a methodical academician, uncompromising in his endeavours to groom quality students for LVPEI.



**Pravin K Vaddavalli:** When he is not performing precision LASIK and refractive surgeries, easy-going Dr. Vaddavalli with his unmistakable baritone, loves to drive around the countryside.



**Rohit Khanna:** The unassuming and reticent head of our community care division ICARE, can surprise with the depth of his knowledge on public health.

**Taraprasad Das:** Quick to reprimand and quicker to praise the deserving, Dr. Das begins mentoring everyday during morning walks with Fellows. The vitreo-retinal surgeon is the director of our Bhubaneswar campus.



**Virender S Sangwan:** A go-getter right from his fellowship days, whether winsomely negotiating for that 'special coffee' or convincing Dr. Rao about 'the need to change', the corneal surgeon and our stem cells star, loves to listen to racy Bollywood numbers.

**Merle Fernandes:** A Telugu-speaking Goan, she is the young director of our Visakhapatnam campus. A superb clinician with a disarming smile, she is extremely approachable and an inspiration to her juniors.



At LVPEI, we have always marched to a different drum. Our philosophy, our people, our programs – they have all been unique and uncharted. From the very beginning, we have journeyed toward excellence, whatever the cost. Now, we look back on a quarter of a century of walking that road and the looking back leads straight to looking ahead. Our future is bright with promise, because our mission has been imbued by all of us, our friendships are strong, and our vision is never out of sight: remaining at the forefront of impacting eye health globally.

Our goal is challenging, to say the least, but we're confident our path will lead us there: so that all may see.



If you would like a copy of this book please contact:  
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*This spectacular journey has  
been made possible thanks to  
the generosity of our donors  
and supporters.*

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## NOTES



HOMELAND CALLING . HEALING HANDS . TRAVERSING BARRIERS . SEEN, UNSEEN . RELEVANCE

& RIGOUR . MADE IN INDIA . SEEING TOMORROW . LOOKING AHEAD . SO THAT ALL MAY SEE





