

Goutami Eye Institute

Goutami Eye Institute (GEI) journey since 2005

June 2024



Acknowledgement

The study has been conducted by Grant Thornton Bharat LLP (“Grant Thornton” or “GT”) for Goutami Eye Institute (“GEI”) with the objective of providing a review and documentation of outcomes achieved since GEI’s inception in 2005, through interactions with various stakeholders, review of existing documents and observations on field.

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Abbreviations used

AGM	Assistant General Manager
APEDS	Andhra Pradesh Eye Disease Study
CMO	Chief Medical Officer
DALY	Disability-adjusted Life Year
DICE	Digital Health Centre of Excellence
DNB	Diplomate of National Board in Ophthalmology
DO	Diploma in Ophthalmology
EFA	Eye Foundation of America
ETROP	Early Treatment for Retinopathy of Prematurity
GEI	Goutami Eye Institute
GEMROP	Goutami Eye Tele Medicine Retinopathy of Prematurity
GT	Grant Thornton
ICROP	The International Classification of Retinopathy of Prematurity
MBBS	Bachelor of Medicine, Bachelor of Surgery
MIS	Management Information System
MoHFW	Ministry of Health and Family Welfare
MoU	Memorandum Of Understanding
NABH	National Accreditation Board for Hospitals & Healthcare Providers
NBEMS	National Board of Examinations in Medical Sciences
NPCB	National Programme for Control of Blindness
NPCBVI	National Programme for Control of Blindness and Visual Impairment
OCT	Optical Coherence Tomography
OECD-DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
ROP	Retinopathy of Prematurity
SD	Sustainable Development Goals
UN	United Nations
VC	Vision Centre
VI	Vision Impairment

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- The recommendations provided as part of the assessment exercise may be implemented after an analysis of prioritization. The decision to implement the recommendations is the responsibility of the management of GEI. Field visits were conducted in cognizance with GEI, the implementing partner and field teams with prior acceptance on approach, methodology, coverage plan, survey tools and indicators.
- Owing to communication gap and the inherent human instinct to report everything as above-expectations and glitch-free, it was challenging to make interviewees understand the purpose of the survey and ensure that correct data was accordingly gathered. In the absence of baseline data, responses for retrospective questions are based on the respondents' ability to recall past information.
- Project and Result frameworks were not available for the program for evaluation study, in absence of which, the study was conducted basis information and understanding provided by program team.
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- The data provided in the section titled "Goutami Eye Institute" is self-reported by Goutami Eye Institute and has been sourced from their website and documents shared by them.

Executive summary

Vision, the most dominant of our senses, plays a critical role in every facet and stage of our lives. We take vision for granted, but without vision, we struggle to learn, to walk, to read, to participate in school and to work. Vision impairment (VI) is a major global health concern, as it is associated with a diminished quality of life and decreased survival expectancy in the middle aged and elderly population. Vision is not only important for personal progress, but also for national and global development. It has the ability to positively impact the global economy in an egalitarian manner as it provides everyone the opportunity to live life to the fullest, realizing their full potential in terms of education, employment, and leading happy, purposeful lives.

The reason a majority of people live with blindness is that they can't access quality eye health care, especially amongst the poor and marginalized populations. In many cases, a straightforward 20-minute operation can restore sight, or a dose of antibiotics can prevent blindness. In developing nations, 4 out of 5 people who are blind don't need to be. Eye diseases like cataract, trachoma and diabetic retinopathy can lead to blindness when, in fact they're either treatable or preventable.

The incredible injustice of this is the driving force behind work done by Dr V.Raju. For the past 4 decades, Dr. Raju MD,FRCS, FACS has been actively and tirelessly on a crusade to eliminate avoidable blindness in areas plagued by poverty and poor access to medical care by improving accessibility and ensuring last mile connectivity for provision of specialized eye care services. Eye Foundation of America (EFA) supports GEI to eliminate avoidable blindness in childhood & beyond.

Dr Raju's mission is to eliminate avoidable blindness under the guiding principles of service, teaching, and research. This is accomplished through eye camps and specialized eye services provided by easily accessible hospitals, training of medical personnel to serve the needy, and educating the population at large on preventative eye care and healthy lifestyle choices.

The Goutami Eye Institute was formed by Dr Raju in 2005 with the urge to eliminate avoidable blindness by providing comprehensive eye care under the guiding principles of:

- Service: - To eliminate avoidable blindness, prevention being the paramount.
- Education: - To educate the public on eye care and injury prevention. The local teachers are taught how to screen for early detection of eye problems in children.

•Medical and surgical interventions: - To protect, preserve, and restore eyesight through caring service, irrespective of socio-economic status, with emphasis on education and research.

Since inception, a total of 82,978 surgeries have been conducted by qualified doctors of GEI in addition to other specialized eye care services enumerated below:

<i>Number of...</i>	<i>Paid</i>	<i>Free</i>	<i>Total</i>
...surgeries	36,576	46,402	82,978
...outpatients	1,35,096	7,83,962	919,058
...investigations	54,793	1,85,935	240,728

<i>Achievement</i>	<i>Figures</i>
Community eye camps	
Villages reached	3,453
People screened	16,29,736
School health program	
Schools reached	2,596
Students screened	6,83,247
Mobile health van	
Villages reached	206
People screened	10,971

In January 2024, Goutami Eye Institute appointed Grant Thornton Bharat LLP to review and document the outcomes achieved so far since inception. Key objectives of the review were to evaluate GEI's achievements focused on addressing eye care needs of the masses and understand the outcomes and impact through discussions with stakeholders like patients, doctors, and hospital staff (both administration and operational).

A study design based on OECD-DAC¹ principles was developed to undertake the review and understand the outcomes of GEI's efforts. 151 patients and ten (10) GEI team members were covered as part of the present study.

¹ The OECD DAC, or the Organisation for Economic Co-operation and Development's Development Assistance Committee, is a forum for major donor countries and organizations to discuss issues surrounding aid, development,

The findings have been categorized under different areas including knowledge and attitude towards eye health, productivity impact insights, economic savings, effectiveness and efficiency and satisfaction level of patients on GEI services and convergence and sustainability.

The following table provides the evaluation of the GEI's efforts on the aspects laid out under the OECD DAC:

<i>Aspect</i>	<i>Details</i>
Relevance Is the intervention doing the right things?	Goutami Eye Institute's work is highly relevant as the services provided bridge the gap in access to affordable eye healthcare for citizens from Rajahmundry and surrounding areas. 57% patients indicated that they had limited access to eyecare facilities, while 27% stated that there was a lack of awareness on the importance of eyecare. Additionally, 16% patients also indicated that there was lack of trained eyecare professionals prior to the establishment of GEI. GEI enables access to affordable eye care services and their efforts have reduced cases of avoidable blindness.
Coherence How well does the intervention fit?	GEI's efforts to provide affordable eye care facilities complements the state government effort to ensure and last mile delivery of services. 85% patients treated in the hospital undergo cashless treatments under the Aarogyasri health scheme for the BPL families. 2,596 school health camps have been conducted to spread awareness about eye care and more than 6 lacs students screened. Furthermore, 14,000+ patients have also availed the facility of Central Government Health Scheme (CGHS) and Employee Health Scheme (EHS) highlighting patients leveraging benefits of health schemes by state and central government. These initiatives align with the United Nations Sustainable Development Goals (SDGs), particularly SDG 3, which aims to ensure healthy lives and promote well-being for all at all ages, by providing equitable access to essential health services and reducing health disparities.
Effectiveness & efficiency Is the intervention achieving its objectives?	67% patients were referred to GEI by their family members and friends. It ensures organic marketing of the institute and highlights high level of credibility for the institute. 43% patients in the age group of 60 years & above and 45% patients in the age group of 46-59 years reported their eye specific problems in the first year. This can be attributed to

and poverty reduction in developing countries. The OECD DAC evaluation criteria are a set of standards used to assess development aid and projects. These criteria ensure that evaluations are consistent, transparent, and effective in improving development outcomes.

<i>Aspect</i>	<i>Details</i>
	the awareness camps held by GEI in villages for improved health seeking behavior.
Impact What difference does the intervention make?	82% patients were able to return to work in the age group of 45 years and below in comparison to 18% before the surgeries leading to increased workforce participation of the working population. Additionally, 90% patients experienced enhanced social engagement and restored self-independence due to the surgery. Similarly, after ROP surgeries for infants, parents rated the communication with doctors 5 out of 5 highlighting high quality treatment and support from the medical staff at GEI.
Sustainability Will the benefits last?	Eye surgeries between 2022 and 2024 increased at 18% (y-o-y) overall and at 8% for Aarogyaasri scheme patients. This highlights the trust and belief in the doctors and hospital staff by the patients. The establishment of state-of-the-art infrastructure in the new hospital will take further the vision of GEI to avoid preventable blindness through timely and specialized treatment.

GEI has been successful in achieving its objectives and provide quality and affordable services to the people. Its qualified strength of doctors, motivated administrative staff and Board of members have given back to the society. Empanelment with Aarogyaasri has helped people from vulnerable population to avail quality eye care services with minimum documentation and cashless treatments. GEI is also the only institute in Rajahmundry to conduct ROP surgeries for infants highlighting their commitment towards reducing preventable blindness.

Section 1 – Background

Global Context

Across the globe, at least 2.2 billion people are living with preventable visual impairment due to a lack of access to basic eye care services. In at least one billion of these people, vision impairment could have been prevented or is yet to be addressed.² Vision impairment is responsible for a global economic productivity loss of USD 410 billion annually.³

Compared to 1990, though the prevalence of blindness and moderate and severe vision impairment (VI) has decreased, the absolute number of blind persons has increased by 17.6% and moderate to severe VI has increased by 35% across the world.⁴ The economic burden of blindness, due to both direct and indirect costs, makes it extremely important to allocate adequate resources and invest in prevention, treatment, and rehabilitation programmes.⁵

Vision impairment occurs when an eye condition affects the visual system and its vision functions. Eye conditions that can cause vision impairment and blindness – such as cataract or refractive error – are, for good reasons, the main focus of eye care strategies; nevertheless, the importance of eye conditions that do not typically cause vision impairment – such as dry eye or conjunctivitis – must not be overlooked. These conditions are frequently among the leading reasons for presentation to eye care services. Everyone, if they live long enough, will experience at least one eye condition in their lifetime that will require appropriate care.

A significant shift in prevalence and causes of VI since the beginning of the 21st century has occurred, from relatively easy and cost effective treatable conditions like cataract, uncorrected refractive error (URE), trachoma, onchocerciasis, to chronic diseases, globally termed as noncommunicable eye diseases (NCEDs).⁶ The consequences of global eye health planning are straightforward: vertically running, stand-alone programs focusing on a specific disease rather than addressing the person as a whole cannot be effective any longer.

² <https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment/2022>

³ https://www.iapb.org/wp-content/uploads/2021/05/Eye-Health_Why-it-matters_18052021.pdf

⁴ Flaxman SR, Bourne RRA, Resnikoff S, Ackland P, Braithwaite T, Cicinelli MV, et al. Global causes of blindness and distance vision impairment 1990-2020: A systematic review and meta-analysis. *Lancet Glob Health* 2017;5:e1221-34

⁵ Frick KD. What the comprehensive economics of blindness and visual impairment can help us understand. *Indian J Ophthalmol* 2012;60:406-10.

⁶ Resnikoff S, Kocur I. Non communicable eye diseases: Facing the future. *Community Eye Health* 2014;27:41-3.

The solution is to provide a comprehensive eye care (CEC) strategy,⁷ based on integrated, multilevel models of eye care delivery (from primary to advanced tertiary levels of care), using the Health System approach and addressing all causes of blindness.⁸ A comprehensive approach to eye care involves not only treatment, but also encompasses prevention, promotion, and rehabilitation for the incurable blindness as well as integrating with other stakeholders in the community.

According to a 2020 Lancet report, 43 million of the approximately 596 million persons who have distance visual impairment are blind and the majority of this visual impairment is treatable or could have been avoided. Additionally, untreated near vision impairment affects approximately 510 million individuals. The prevalence of vision impairment is about 83% higher in low- and middle-income nations and it is frequently concentrated in underprivileged populations within these nations. People with impaired eye health have significant challenges in public health throughout their whole lives, and it significantly impedes sustainable development⁹.

United Nations Sustainable Developmental Goals

The United Nations Sustainable Development Goals (SDGs) are a universal call to action to build a healthier world for the entire population and the environment by 2030.

The United Nations (UN) has identified 17 SDGs, and vision is in line with achieving each of these goals. It plays a significant role in the 2030 Agenda for Sustainable Development. The underlying reasoning for this is that people cannot fully contribute to the 2030 Agenda if they do not have adequate vision and eyesight. The achievement of Goal 3 viz. Good Health and Wellbeing is inextricably linked to the state of people's eyes. Other major linkages are with goals such as No Poverty (#1), Zero Hunger (#2), Quality Education (#4), Gender Equality (#5), Decent Work and Economic Growth (#8) and Reducing Inequality (#10)¹⁰.



Thus, Vision makes an important contribution to the 2030 Agenda for Sustainable Development and cuts across many of the Sustainable

⁷ Khanna RC, Marmamula S, Rao GN. International vision care: Issues and approaches. *Annu Rev Vis Sci* 2017;3:53-68.

⁸ Rao GN, Khanna RC, Athota SM, Rajshakar V, Rani PK. Integrated model of primary and secondary eye care for underserved rural areas: *Indian J Ophthalmol* 2012;60:396-400

⁹ Trends in prevalence of blindness and distance and near Vision impairment over 30 years: An analysis for the global burden of disease study - the lancet global health. (2020, December 1). [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30425-3/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30425-3/fulltext)

¹⁰ Kumar, A., Mehta, A., Mehta, S., & Singh, K. (n.d.). Accessibility of Eye Care Services in India in the throes of pandemic: An evaluation. *Counter View*. <https://www.counterview.in/2022/08/accessibility-of-eye-care-services-in.html>

Development Goals as described above.

Indian scenario

In India itself, there are 9.3 million people with serious visual impairments, 75% of which could be avoided through early detection and timely management¹¹

Lack of awareness and inadequate healthcare infrastructure prevent many from receiving the necessary care, leading to avoidable blindness and its associated socio-economic impacts¹². The situation is particularly dire in rural and underserved areas across India where healthcare facilities are scarce. Consequently, marginalized communities, including tribal populations, Scheduled Castes, and minorities, are often disproportionately affected. Women in these communities face even greater barriers in accessing eye care. In some of the most backward states like Uttar Pradesh, Madhya Pradesh, and Bihar, the prevalence of blindness is notably high¹³. Disability-adjusted life years (DALYs) due to vision impairment in India highlight the substantial burden of eye diseases on the population.

The Andhra Pradesh Eye Disease Study (APEDS) revealed a high prevalence of blindness and visual impairment in the state, primarily due to treatable conditions such as cataracts and uncorrected refractive errors.

The prevalence of blindness in Andhra Pradesh was 1.84%, with a significant proportion attributable to cataracts (63.7%) and refractive errors (19.7%)¹⁴

As per the APEDS the likelihood of becoming blind increased with age and decreased with socioeconomic position, with the risk being 37% higher in women than in men¹⁵.

GEI provides quality eye care to vulnerable communities across Andhra Pradesh through extensive outreach programs, medical training, and innovative initiatives. GEI's services include community eye camps, mobile clinics, school vision programs, and a network of vision centers, ensuring comprehensive and accessible eye care. Such programs are essential for providing equitable access to eye care services, especially in remote areas¹⁶.

¹¹ <https://www.business-standard.com/article/current-affairs/india-loses-118-bn-annually-in-gni-due-to-childhood-blindness-report-122090901204>

¹² Sightsavers India. (2021, May). Rural eye health: An impact waiting to be achieved. Retrieved from <https://www.sightsaversindia.org/blogs/2021/05/rural-eye-health-an-impact-waiting-to-be-achieved/>

¹³ Sightsavers India. (2014, June). Eye care India situation. Retrieved from <https://www.sightsaversindia.org/reports/2014/06/eye-care-india-situation/>

¹⁴ Dandona, L., Dandona, R., Naduvilath, T. J., McCarty, C. A., & Rao, G. N. (2001). Population-based assessment of refractive error in India: the Andhra Pradesh Eye Disease Study. *Clinical & Experimental Ophthalmology*, 29(5), 203-210.

¹⁵ Dandona, R; Dandona, L. Review of findings of the Andhra Pradesh Eye Disease Study: policy implications for eye-care services. *Indian Journal of Ophthalmology* 49(4):p 215-234, Oct-Dec 2001.

¹⁶ Sightsavers India. (2014, June). Eye care India situation. Retrieved from <https://www.sightsaversindia.org/reports/2014/06/eye-care-india-situation/>

The Indian government has launched various policy initiatives to improve healthcare delivery, including the Ayushman Bharat program, which aims to provide universal health coverage. Despite these efforts, significant disparities in healthcare quality and access persist across different states and regions¹⁷.

Despite numerous state and central government initiatives aimed at improving eye healthcare in India, further interventions are necessary to address the substantial gaps in service delivery and access, particularly highlighted by findings of APEDS¹⁸. The study revealed a high prevalence of blindness and visual impairment in Andhra Pradesh, primarily due to treatable conditions such as cataracts and uncorrected refractive errors. While programs like the Kanti Velugu and AarogyaSri have made significant strides in providing free eye examinations and treatments, the persistent disparities in healthcare access, especially in rural areas, underscore the need for more comprehensive and targeted interventions.

APEDS also highlighted that socioeconomic factors, gender, and rural residence significantly impact the prevalence of visual impairment, suggesting that current healthcare initiatives must go beyond general coverage and address these specific vulnerabilities.

There is a pressing need for enhanced public awareness campaigns, more extensive rural outreach, and the integration of advanced diagnostic and treatment technologies across all healthcare facilities. To bridge this gap, eyecare services need to be enhanced in terms of quality and access.

Health schemes available in Andhra Pradesh

AarogyaSri Health Scheme

A pioneering health insurance scheme in Andhra Pradesh designed to provide financial protection to low-income families. The scheme covers a wide range of medical treatments, including over 2,000 procedures for serious illnesses like cardiac, neurological, renal, and orthopedic conditions. It also addresses cancers, burns, and other severe ailments. Eligibility is determined by holding a white ration card, indicating the families below poverty line status. The scheme offers cashless treatment through a network of empaneled hospitals, which include both public and private institutions across the state. Regular health camps are organized for early detection of diseases, and a 24/7 call

¹⁷ World Health Organization. (n.d.). India health system review. Retrieved from <https://apo.who.int/publications/i/item/india-health-system-review>

¹⁸ Directory of Open Access Journals. (n.d.). Retrieved from <https://doaj.org/article/8db1261edb414f0b86f60a4dc3336d11>

center provides information and support to beneficiaries. The cost coverage is up to INR 5 lakh per family per annum for medical expenses.

Kanti Velugu

An ambitious eye care initiative providing comprehensive vision care services. The program aims to prevent, detect, and treat eye disorders, especially in underserved and rural communities. Free eye screenings are conducted for all age groups, and those diagnosed with refractive errors receive free spectacles. The scheme also covers surgeries for conditions like cataracts, which are performed at no cost in empaneled hospitals. All costs for screenings, spectacles, and surgeries are covered by the government. To reach remote areas, mobile eye clinics are deployed, ensuring access to necessary eye care services.

NTR Vaidya Seva

A health insurance scheme similar to AarogyaSri, targeting low-income families. It provides financial assistance for a wide array of medical treatments, including surgeries, therapies, and hospitalizations. Beneficiaries are families with a white ration card, and the scheme utilizes a network of public and private hospitals to deliver these services. The cost coverage is up to INR 2.5 lakh per family per annum for medical expenses.

India has been at the forefront of providing eye care to its people by implementing programs such as the National Programme for Control of Blindness (NPCB) in 1976, which was renamed to the National Programme for Control of Blindness and Visual Impairment (NPCBVI) in 2017. These programmes are administered by the Ministry of Health and Family Welfare (MoHFW) and have made considerable progress in their first few decades of implementation. However, many challenges persist in terms of fund allocation and utilisation, skewed performance across states, resource allocation and capacity building.

India's eye care system has, nevertheless, advanced significantly during the last few decades. Strong leadership, creativity, funding, and government assistance have all contributed to the advancement of eye care and the expansion of its accessibility¹⁹. Key players also include Non-Profit organisations such as Goutami Eye Institute which have sparked important advancements in eye care, including the procurement of world class equipment, physician training, and the creation of a support staff

¹⁹ Saldinger, A. (2018, October 31). How India became a leader in low-cost, high-quality eye care | devex. <https://www.devex.com/news/how-india-became-a-leader-in-low-cost-high-quality-eye-care-93749>

structure that has significantly raised the number of patients that each doctor is able to treat.

Section 2 – Goutami Eye Institute

Goutami Eye Institute or GEI was established in 2005 in Rajahmundry in East Godavari district of Andhra Pradesh. GEI is registered as a Society and is exempted under Section 12 (A) and Section 80 (G) of the Income Tax Act.

Specialized facilities in Eye care, in all the subspecialties viz., Cataract, Retina, Glaucoma, Neuro-ophthalmology, Pediatric Ophthalmology, Cornea Services and Retinopathy of Prematurity (ROP), free of cost to the underprivileged and at affordable prices to other patients at the ratio of 60:40 are provided at GEI.

The institute was conceptualized by Dr. Vadrevu K. Raju, MD, FRCS, FACS a board-certified Ophthalmologist. Dr. V.K Raju is also a Clinical Professor of Ophthalmology at West Virginia University, Fellow of the Royal College of Surgeons, Fellow of the American College of Surgeons, Director of the International Ocular Surface Society, Director of the Ocular Surface Research and Education Foundation, MBBS at Andhra University in India, Chairman of Goutami Eye Institute in Rajahmundry, Adjunct Professor at Wilmer Eye Institute and John Hopkins University, and is the President and Founder of the Eye Foundation of America.



In 1977, during one of his visits in India, Dr. Raju offered an eye camp near his hometown in Rajahmundry. This was the inception of the need for an organization to prevent avoidable blindness. Soon after, the West Virginia Ophthalmology Foundation was established in 1982, which was later renamed as the Eye Foundation of America or EFA. Through EFA, Dr. Raju has endeavored to help the people of his native region and has established two (02) eye hospitals in Andhra Pradesh viz. Sri Kiran Eye Institute in Kakinada²⁰ and Goutami Eye Institute in Rajahmundry.

²⁰ Sri Kiran Institute of Ophthalmology was established in 1993 to offer ophthalmic services in Kakinada. The institute has served more than 34 lakh patients and performed more than 3.5 lakh surgeries to date, out of which 90% have been provided for free to underserved patients. The Foundation also developed a wide network of 11 vision centers and 3 surgical centers to make eye care Accessible, Affordable and Equitable.



Srikiran Eye Institute
Kakinada



Goutami Eye Institute
Rajahmundry

Timeline and key milestones

Year	Milestones
2005	Inception and inauguration of the GEI
2007	1,000 free surgeries completed
2008	Affiliation with Aarogyasri, the State Government's premier healthcare initiative
	5,000 free surgeries completed
2010	10,000 free surgeries completed
2011	Teachers Training Program as part of the "Vision for Children" initiative
	Screening in government schools of Andhra Pradesh and Telangana under the "Chinnari Choochu" program
2013	Approved as a provider for the Employee Health Scheme
2015	Conducted screening camps in Ekalavya Schools
	Initiated GEMROP for screening ROP babies
	Staff strength- 70
2017	Certificate of Appreciation from the Government of Andhra Pradesh
2018	MoU to establish a territory center at Machilipatnam.
2019	Granted NABH accreditation (entry-level)

2020	Initiated Mobile Eye Clinic Bus
	Initiated GEMROP in Kolkata
2021	MoU with Sri Sringeri Sharada Peetham Charitable Trust
	Accredited with NBEMS and obtained DNB and DO seats
	Established a WET lab in association with Appasamy Associates
	Mobile Eye Clinic Services in Gokavaram and Korukonda
2023	Conducted 52 cross linking procedures till date
	Recognized as "Best Hospital" by the Government of Andhra Pradesh
	Staff strength- 84

Focus areas

GEI provides quality eye care to vulnerable communities through extensive outreach programs, medical training, and innovative initiatives. GEI's services include community eye camps, mobile clinics, school vision programs, and a network of vision centers, ensuring comprehensive and accessible eye care. The focus areas of GEI's work are:

Accessibility

Ensuring universal and inclusive healthcare has consistently been a challenge for policymakers in India. However, when it comes to rural areas of the country, the challenge grows exponentially. In order to bridge this gap, GEI offers comprehensive eye care support that is both affordable and accessible. It does so by conducting extensive campaigns throughout the state of Andhra Pradesh and partnering with relevant stakeholders. Additionally, patients with Aarogyasri health cards, a health insurance scheme funded by the state government, are entitled to receive eyecare procedures free of cost. Majority of patients at GEI avail cataract, retina, glaucoma, and ROP services.

Education

Through the DNB (Diplomate of National Board in Ophthalmology) program, GEI has trained over 700 Ophthalmologists and over 500 paramedical personnel. Apart from Academic training, GEI also pursues research projects in Ophthalmology in order to explore innovative eye care delivery systems, refine its training programs and ensure best practices in its service delivery.

Retinopathy of Prematurity (ROP)

Retinopathy of prematurity (ROP) is a potentially blinding and visually impairing vasoproliferative condition of the preterm retina²¹.

Infants are at risk for ROP if they're born before 30 weeks of pregnancy or weigh less than about 3 pounds at birth.

Babies are also more likely to develop ROP if they have:

- Breathing problems (and if they get too much oxygen therapy to treat breathing problems)
- Infections or other medical problems that premature babies may have — like problems with their heart, lungs, or brain

Normally, the blood vessels of the retina start to develop in the fourth month of pregnancy and finish developing around the due date, or 9 months of pregnancy. If a baby is born very early, these blood vessels may stop developing normally. The retina then develops new blood vessels that are abnormal. This is called retinal neovascularization, or NV. These abnormal blood vessels can grow in the wrong direction. The blood vessels are attached to the retina — so if they grow too far in the wrong direction, they can pull the retina up off the back of the eye. This is a type of retinal detachment.

Infants at risk for ROP must therefore receive prompt screening and treatment. GEI has been successful in establishing the largest network of screening and treatment for ROP in Andhra Pradesh. Till date GEI has conducted 1776 ROP treatment across the state of Andhra Pradesh.

Community outreach initiatives

Community Eye Camps

As part of its community outreach programs, GEI conducts camps in remote areas of Andhra Pradesh and transports patients to the base hospital in its bus. At the base Hospital, patients and one attendant receive free food and accommodation. After surgical intervention, they are provided with free medication and spectacles. Following the treatment, patients are transported back to their respective villages. Post-operative care is also provided at no cost. The majority of these patients are elderly women (47%) and/or daily wage earners (72%). The Base Hospital is equipped with dedicated wards and staff to address these patients. Post-operative follow-up is also conducted at their respective residences in towns and villages.

²¹ Anthikarisamy, S. E., Vinekar, A., & Patole, S. (2023, May 10). Retinopathy of prematurity in India – what can we learn from the polio legacy. [https://www.thelancet.com/journals/lansea/article/PIIS2772-3682\(23\)00070-7/fulltext](https://www.thelancet.com/journals/lansea/article/PIIS2772-3682(23)00070-7/fulltext)

Since its inception, the institute has examined approximately 900,000 outpatients and performed about 75,000 surgical procedures.

Mobile Health Camps

Eye camps are also conducted by the Goutami Eye Institute using a dedicated, fully air-conditioned Mobile Eye Clinic, equipped with various ophthalmic instruments such as an LCD Vision Chart, Lens Set (Trial Set), Retinoscope, Slit Lamp plus 90D lens, Auto Refractometer, Chair Unit, Fundus Camera, Perkins Tonometer, Indirect Ophthalmoscope, Auto Lens Meter, and Examination bed. This equipment is utilized to screen for Refractive errors, Cataract, Glaucoma, and Diabetic Retinopathy in patients during community screenings. Patients identified with eye problems at these camps are transported to the Base Hospital for further treatment in institute-owned vehicles.

Since inception, 206 villages have been covered and 10,971 patients have been screened. The mobile health camp's schedule is partly fixed, with Mondays and Tuesdays dedicated to catering to the people in the Rajahmundry marketplace. The rest of the week is earmarked for visiting remote villages, with a target of visiting 15 villages per month.

School Health Programme

Goutami Eye Institute initiated a vision screening program for school children as part of its project "A World without Childhood Blindness," aiming to eliminate avoidable blindness in children. Starting in 2005-06, GEI realized the necessity to train school teachers to identify children with eye problems, given the vast number of students in Andhra Pradesh's government schools. By 2007, the first batch of teachers were trained, and screening efforts extended from Rajahmundry to all mandals in East Godavari, West Godavari, Khammam, and Hanumakonda districts. This led to a statewide partnership with the Government of Andhra Pradesh in 2012, resulting in 7,000 toolkits for teacher training. To date, over 700,000 children have been screened, with those needing vision glasses or further medical and surgical interventions receiving free treatment. The program also focuses on identifying children with specific conditions like cataracts, glaucoma, and nystagmus. The institute has received support from Dr. Richard Hertle, a renowned Pediatric Ophthalmologist from Akron, Ohio, who has performed surgeries of the identified students every year since 2011. Additionally, GEI established a special outpatient clinic for pediatric eye care, emphasizing parent education and training.

Goutami Eye Tele Medicine Retinopathy of Prematurity (GEMROP) Project

The Goutami Eye Institute initiated a telemedicine-based screening program for Retinopathy of Prematurity (ROP) in 2015. The project involves ROP

screening conducted by a trained technician using a wide-angled retinal camera, with the images sent to a remote ROP specialist for analysis and classification according to ICROP guidelines²². Treatment and follow-up protocols are determined by the remote specialist, following ETROP study²³ for infants requiring treatment. The program currently serves neonatal centers in several districts of Andhra Pradesh and since its inception has screened 16,453 babies and treated 1,456 babies. All screened and treated babies have had favorable outcomes, highlighting the effectiveness of telemedicine in ROP screening, particularly in regions with limited ROP specialists.

Infrastructure available

GEI provides complete eye care services to people from all backgrounds. With modern building, advanced equipment, and a skilled team, GEI offers high-quality eye care. The institute's dedication to excellence is clear in its up-to-date facilities, advanced tools for diagnosis and treatment, and a focus on ongoing training and education for its staff.

GEI is a 25,000 sq.ft. facility spanning four floors and a terrace, featuring 23 male wards and 16 female wards for Aarogyasri patients, along with 1 deluxe room, 2 special rooms, and 10 general beds for paying patients.

The institute is housed in a modern, multi-story building equipped with spacious consultation rooms, specialized treatment areas, and comfortable waiting lounges. The facility also includes a dedicated pediatric ophthalmology wing, reflecting its commitment to addressing childhood blindness and other pediatric eye conditions.

²² The International Classification of Retinopathy of Prematurity (ICROP) guidelines was initially published in 1984, expanded in 1987 and further modified in 2005. It is a system used to classify the stages of retinopathy of prematurity (ROP), a potentially blinding eye disorder that primarily affects premature infants. The ICROP classification system helps ophthalmologists and healthcare professionals to assess the severity of ROP and determine appropriate management and treatment strategies. (Chiang, M. F., et.al., 2021)

²³ The "Early Treatment for Retinopathy of Prematurity" (ETROP) study was a ground-breaking clinical trial that looked into the optimal time to treat retinopathy of prematurity (ROP) in premature infants. The results of the ETROP trial indicated that, in comparison to conventional management strategies, treating some high-risk ROP cases with laser therapy considerably decreased the likelihood of poor visual outcomes. As a result, the study's findings have altered clinical practice guidelines for ROP care, emphasizing the significance of early intervention in select cases to avoid vision loss. (Good, W. et. al., 2004)



Operation theatre



Patient consultation



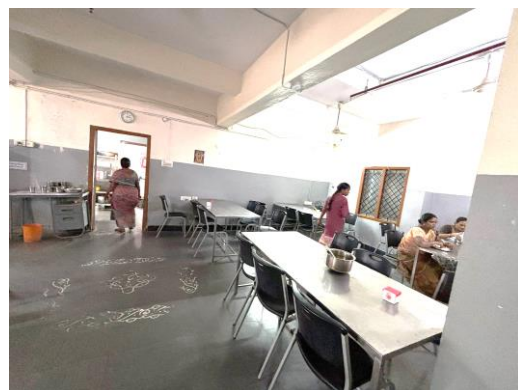
Patient waiting area



Post-op waiting area



Post-op ward



Canteen

The institute is equipped with advanced ophthalmic equipment and technology to ensure accurate diagnosis and effective treatment of a wide range of eye conditions. Key equipment includes:

- Optical Coherence Tomography (OCT): For detailed imaging of the retina and optic nerve.

- Phacoemulsification Machines: For modern cataract surgery, allowing for small incision procedures.
- Lasik and PRK Machines: For refractive surgery to correct vision issues such as myopia, hyperopia, and astigmatism.
- Fundus Cameras: For high-resolution imaging of the interior surface of the eye.
- Automated Perimetry: For comprehensive visual field testing, essential for diagnosing glaucoma and other optic neuropathies.
- Mobile Eye Clinic Van: Fully equipped with ophthalmic instruments for rural outreach, including tools for screening refractive errors, cataracts, glaucoma, and diabetic retinopathy.

Experts and staff

GEI is staffed by a team of qualified and experienced ophthalmologists, optometrists, and support staff dedicated to delivering exceptional eye care.

There are 8 ophthalmologists, 9 optometrists, and 13 support staff members.

The faculty includes:

- Resident Ophthalmologists: Specialists in various fields of ophthalmology, including cataract surgery, glaucoma management, corneal disorders, and retinal diseases.
- Optometrists and Technicians: Trained professionals who assist in diagnosis, treatment planning, and follow-up care, ensuring comprehensive patient support.
- Pediatric Ophthalmologists: Experts who focus on treating childhood eye conditions and contributing to the institute's goal of eliminating childhood blindness.

The institute also focuses on continuous education and training, ensuring that the faculty stays updated with the latest advancements in ophthalmology. In the last year, 22 trainings were conducted for the medical team. Regular workshops, seminars, and collaboration with international experts contribute to the ongoing professional development of the staff.

Vision centers

GEI has a network of vision centers, who screen patients and refer them to the base hospital in Rajahmundry in case surgical intervention is needed. GEI regularly coordinates with the vision centers and facilitates transportation of patients to and from the base hospital from the center. The following areas are covered by GEI through its network of vision centers:

District	Village
Krishna	Machlipatnam
East Godavari	- Mummidivaram - Thallarevu - Kothapeta G. Mamidada
West Godavari	- Veeravasaram - Narasapur
Kakinada	- Jaggampeta - Tuni



GEI Vision centre,
Mummidivaram
Patient care process

The patient care process GEI ensures a thorough and organized approach from initial identification to post-surgery follow-up. Patients are identified through various channels, and detailed discussions and assessments are conducted. Verification, scheduling, and documentation are carefully managed, ensuring a smooth experience. Post-surgery, follow-up and continuous support are provided to address any issues and maintain comprehensive records.

Identification of patient – vision centers / eye camp / tele screening / walk in
Counsellor discusses surgery process with patient / caregivers
Counsellor prepares patient assessment form
Verification of patient's Aarogyasri card
Creation of patient medical record in the system
Schedule of patient's surgery reverification of documents
Performance of patient's surgery
Completion of documentation with patients' surgery details
Follow up schedule after recovery period (varies by type of surgery)
Patient visiting vision center / hospital if any issues occur
Follow up assessment
Record maintenance in hospital system

Awards and recognition

- Government of Andhra Pradesh (Aarogyasri Trust) recognized GEI as “Best Hospital” for the services rendered in 2022-23
- National Accreditation Board for Hospitals and Health Care Providers (NABH) have certified GEI
- In recognition of valuable services being rendered by GEI, Govt. of Andhra Pradesh has conferred the Certificate of Appreciation and also felicitated GEI on the occasion of 209th Birth anniversary of Louis Braille.
- GEI has been accorded approval for commencing DNB and DO Post graduation training courses by National Board of Examination in Medical Sciences from 2021. Three students have also been enrolled in the respective courses for the academic year 2021

Section 3 – About the study

In January 2024, Grant Thornton Bharat LLP was appointed to review and document the outcomes achieved by Goutami Eye Institute. Key objectives of the review were to:

- Evaluate the significance of GEI's initiatives in addressing the eye care needs of populations, ensuring accessibility and affordability to eye care services, and enhancing their quality of life.
- Assess GEI's performance in reducing avoidable blindness among vulnerable and economically marginalized populations in rural Andhra Pradesh.
- Gauge an overall understanding of the outcomes and impact through discussions with relevant stakeholders, including patient feedback on the support received.
- Evaluate sustainability and impact of GEI services and programs.
- Capture stakeholders' suggestions for improvement and identify critical factors, gaps, and areas of improvement.

For the review, principles of OECD-DAC framework has been used. The review was executed by conducting interviews and discussions with the beneficiaries and key stakeholders at GEI in Rajahmundry, Andhra Pradesh.

Scope of the review

The review considers the depth of GEI's interventions, such as outreach programs, capacity building initiatives, and partnerships with local healthcare providers through engagement with beneficiaries of the services provided by GEI. By analyzing GEI's efforts from its inception to the present, the document will provide insights into the organization's achievements and areas for improvement.

The team requested documents from GEI for desk review, these included their MIS data with treatment wise, year wise and scheme wise distribution of patients, village coverage of outreach programmes, standard operating procedures for different initiatives.

The assessment team visited Goutami Eye Institute in Rajahmundry to conduct discussions with relevant stakeholders, capture insights of beneficiaries and tour the facility. The team also visited two (02) vision centers in Kothapeta and Mummidivaram.

Review framework

The approach to the study involved developing an understanding of the modality of the programs, analyzing beneficiary responses, and corroborating them with inferences from stakeholder discussions to identify critical factors, gaps, and methods of improvement. The study was

conducted through a pre-defined approach to assess the outcome / impact of the project on the beneficiaries. The methodology adopted for the study considered quantitative and qualitative data collection. Based on the principles of OECD DAC²⁴, GT framed an evaluation framework which enabled holistic evaluation of the projects.

Relevance	Coherence	Effectiveness
Do the goals of GEI's interventions align with the needs of the beneficiaries, and the policies set forth by the government?	Are GEI's services compatible with other interventions in the country, sector, or institution?	The importance of the interventions undertaken by GEI in the community and achievement of objectives.
Efficiency	Impact	Sustainability
How much results has GEI's intervention produced in a cost-effective and timely manner or is expected to do so?	How much positive impact has been generated due to GEI's interventions?	How well GEI can keep providing services in a long run?

Methodology followed

The methodology in the assessment for GEI's achievements in eliminating avoidable blindness combines both primary and secondary data analysis. Primary data includes interviews with various stakeholders such as the patients at the vision centers and GEI's main hospital in Rajahmundry, and GEI staff. Telephonic interviews with patients who were treated at GEI were also conducted to gather their experiences and testimonials. Secondary data comprises desk research and information provided by the GEI team.

Stage I- Planning	Stage II- Data collection	Stage III- Reporting
- Kick-off meeting to understand project context, objectives, and approach, - Review of documents, - Identification of stakeholders and areas of enquiry,	- Online Training of data collectors - Field visit to GEI and vision centers for data collection through qualitative and quantitative methods,	- Collection of information from all sources, - Preparation of draft narrative report, discuss report findings, results and recommendations with

²⁴ The OECD Development Assistance Committee (DAC) is a forum within the OECD that coordinates international development aid efforts, promotes effective development policies, and provides comprehensive data on official development assistance (ODA). It aims to enhance the impact of aid through better coordination, policy guidance, and accountability among donor countries.

<i>Stage I- Planning</i>	<i>Stage II- Data collection</i>	<i>Stage III- Reporting</i>
Development of tools for undertaking data collection.	Detailed discussions and interviews with relevant stakeholders.	project team and obtain relevant inputs for final report, Prepare and issue final report.

Preliminary visit to GEI

The assessment team, along with senior advisor, Dr. Amit Chatterjee, visited Goutami Eye Clinic for a preliminary discussion in April 2024. They toured the facility and interacted with the team at Goutami to gain a better understanding of the workings of GEI through interactions with the staff and the implementation team. The focus of the visit was to understand the ways of working of GEI, achievements so far, systems and processes in place and key differentiator of GEI in the eye healthcare space in Rajahmundry. The team also visited, Akira Eye Hospital, the only other major eye care provider in the city.

Study design

A mixed methods study design was adopted. It included both, quantitative survey with beneficiaries, and qualitative interviews with the key stakeholders. The table below provides the sampling plan for the quantitative data collection under the present study:

<i>Stakeholders</i>	<i>Sample</i>	<i>Selection</i>
Patients / beneficiaries (cataract, retina problem, glaucoma etc.)	96	95% confidence level +/- 10 confidence interval ²⁵
ROP beneficiaries	15	Random sampling selection

For qualitative data collection, separate In-depth interviews (IDIs) were conducted with hospital staff, vision center team and beneficiaries.

Stakeholder areas of enquiry

The next step involved mapping of key stakeholders of the projects. The table below presents the list of stakeholders along with the key areas of enquiry.

²⁵ Confidence level is probability that the value of a parameter would be similar for the population as calculated for the sample and confidence interval is range of plausible values for a parameter.

Stakeholders	Areas of enquiry
Patients	• Need of the eye care services in the community • Range of services offered by GEI as per priorities of the communities • Patients' satisfaction level w.r.t. services provided • Accessibility and comfort at the clinic • Affordability w.r.t other hospitals in the area • Increased awareness about eye care services in the community • Referrals and government schemes linkages • Post-op care by the institute
Chief Medical Officer (CMO)	• Overview of the project and its progress • Identification of needs and mapping of adequate services • Key roles and responsibilities • Monitoring Patient Flow, Bed Occupancy, Resource Utilization • Availability of adequate equipment medicines, and consumables • Cost-Effective & On-Time Delivery of Services • Staff productivity across departments • Active Coordination between departments on processes and patient care • Key challenges • Reporting and monitoring mechanism with the board
Assistant General Manager (AGM)- Operations and Administration	• Core principles used to define the institute's vision and mission • Key roles in augmenting institute's public image and relations • Alignment with long term strategy priorities vs current year's spending projections/analysis • Monitoring of patient satisfaction through timely reports from CMO • Improvement in performance of hospital staff • Better achievement of target long-term activities • Easier transition to next FY with visible learnings that may help strategize budget management to ensure long-term financial efficiency and resilience
AGM -Finance	• Identification of risks to protect the hospital's financial assets • Activities related to financial reporting to management • Routine monitoring of financials • Management of bills, and disbursement of funds • Risk/s identification, assessment, and quantification

Stakeholders	Areas of enquiry
	• Identification of redundant costs • Reduction in fixed costs • Optimization of revenues while ensuring compliance with healthcare regulations • Increased financial stability
Project Outreach Manager	• Roles and responsibilities • Needs of the community as identified through experience in working closely with the community • Tailored strategies to meet the needs of the target population • Referral process • Partnerships and their alignment with GEI's vision • Objectives and processes involved in various outreach programmes like School Health Programme, Mobile Health Camps and more

Data collection

In May 2024, the review team along with translators visited Rajahmundry to collect data from patients at GEI, patients near the vision centers in Kothapeta and Mummadivaram, and other stakeholders at GEI. Additionally, past patients were reached telephonically for gathering their views and feedback.

Stakeholder	Planned	Actual ²⁶
Patients / beneficiaries (cataract, retina problem, glaucoma etc.)	96	136
Parents of ROP beneficiaries	15	15
Chief Medical Officer (CMO)	1	1
Doctor	1	1
AGM – Finance	3	3
AGM – Operations		
AGM – Administration		
Project Outreach Manager	1	1
Staff members viz. Project outreach, MIS, Vision centers	4	6

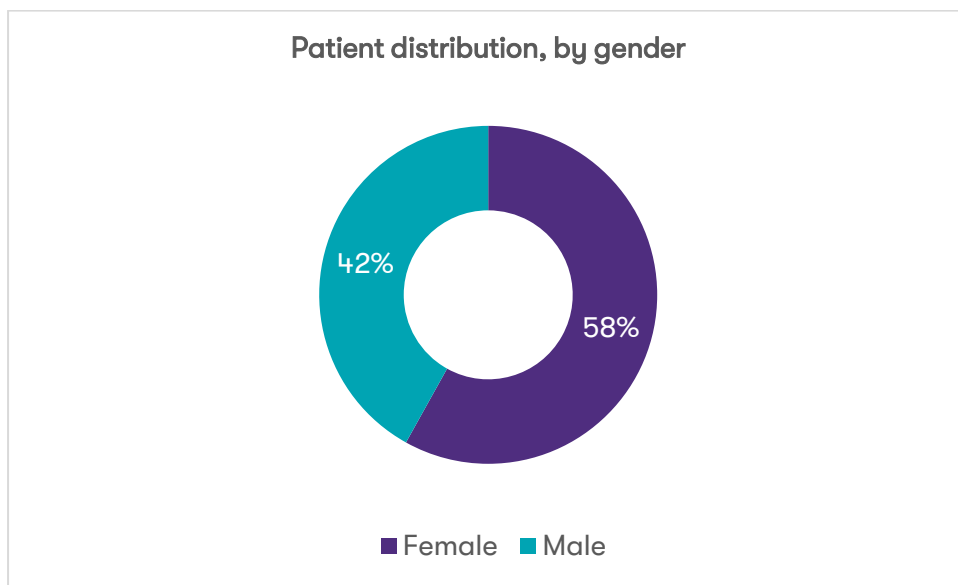
²⁶

Stakeholder	Planned	Actual ²⁶
Beneficiaries	5	15

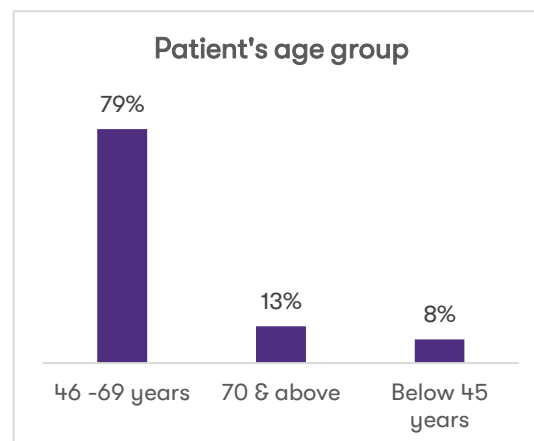
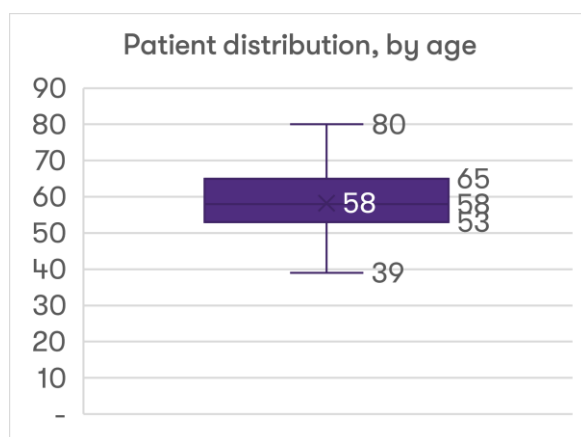
Respondent profiling

As part of the study, a sample of 140 patients treated by GEI was covered. The following are demographic details of the sample population.

58% respondents were female and 42% were male.



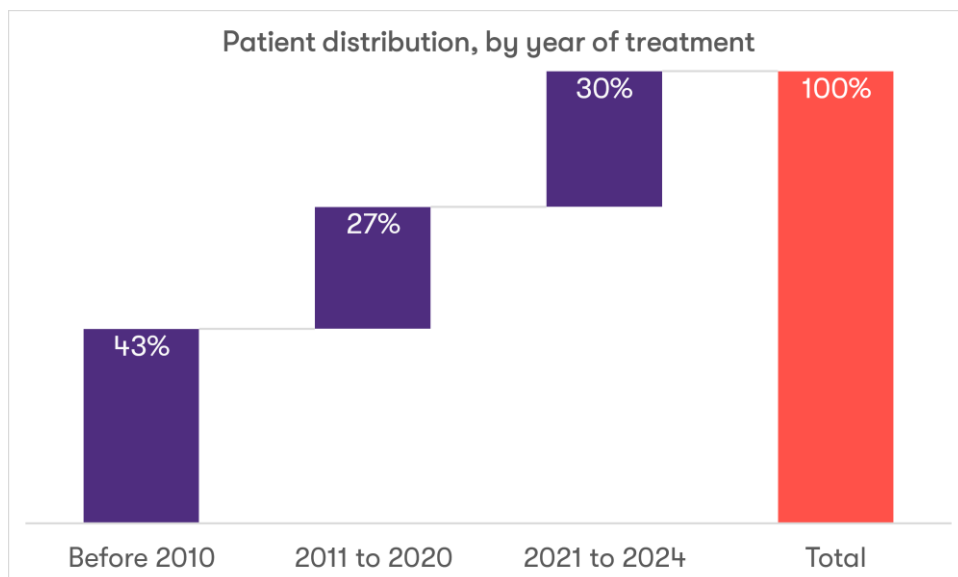
Average age of the respondent was 58 years and majority of the patients were between the ages of 53 and 65. The box plot below shows the spread of the respondents by age (in years).



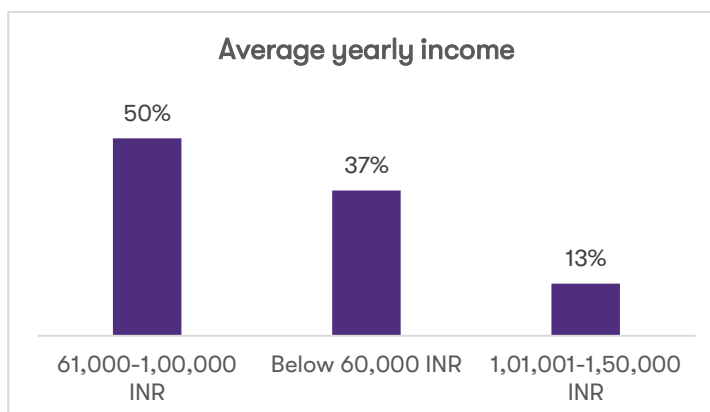
79% of the respondents fall into this age of 46-69 years. This age group is typically more prone to eye conditions such as cataracts, glaucoma, and age-related macular degeneration, which may necessitate surgical intervention. 13% of the patients are 70 years or older. Cataract, if left

untreated in this age group can lead to blindness. GEI has been successful in ensuring the treatment of elderly population and ensure a healthy vision.

30% respondents who were part of the study were treated in GEI between 2021-2024, whereas 27% were treated between 2011-2020 and 43% were treated before 2010.



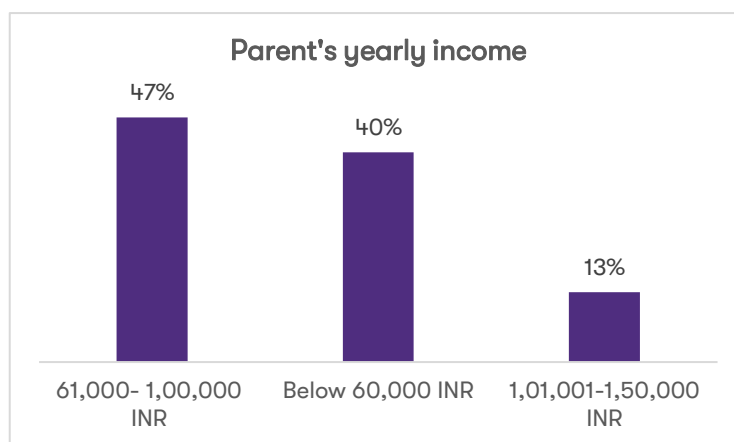
50% of the respondents fall within the annual income range of INR 61,000 to INR 1,00,000. This indicates that a significant portion of the institute's patients belong to the lower-middle-income group, which likely reflects the affordability of the services offered by the institute. Additionally, 37% of the patients have an annual income below INR 60,000, suggesting that the institute is accessible to and utilized by low-income individuals. This accessibility may be due to subsidized treatment costs or targeted outreach programs aimed at supporting economically disadvantaged groups.



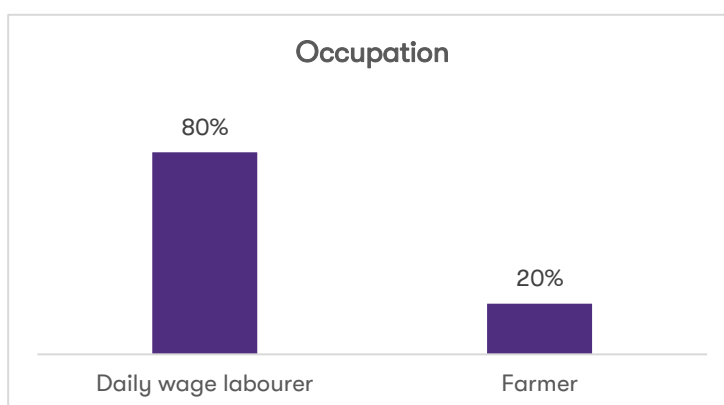
ROP

Additionally, 15 parents of ROP beneficiaries were also interviewed. The following are the demographic details of the parents of the children treated for ROP by GEI.

The data indicates that 87% of parents earn less than INR 1,00,000 annually, with 47% earning between INR 61,000 and INR 1,00,000, and 40% earning below INR 60,000. This highlights the significant economic challenges faced by the majority of GEI's patients, who belong to lower-income brackets. Only 13% of respondents fall within the INR 1,01,001 to INR 1,50,000 range. These figures underscore the importance of GEI's affordable eye care services in supporting economically disadvantaged families, ensuring that essential healthcare is accessible to those with limited financial resources.



80% of the parents of the ROP patients assessed were daily wage labourers, with the rest 20% being farmers. Both these groups typically suffer from income insecurity and lack of access to quality healthcare. The data reflects how GEI's efforts target the vulnerable sections of society.



Section 4 – Review findings

Determining the need, meeting the demand

Goutami Eye Institute (GEI)

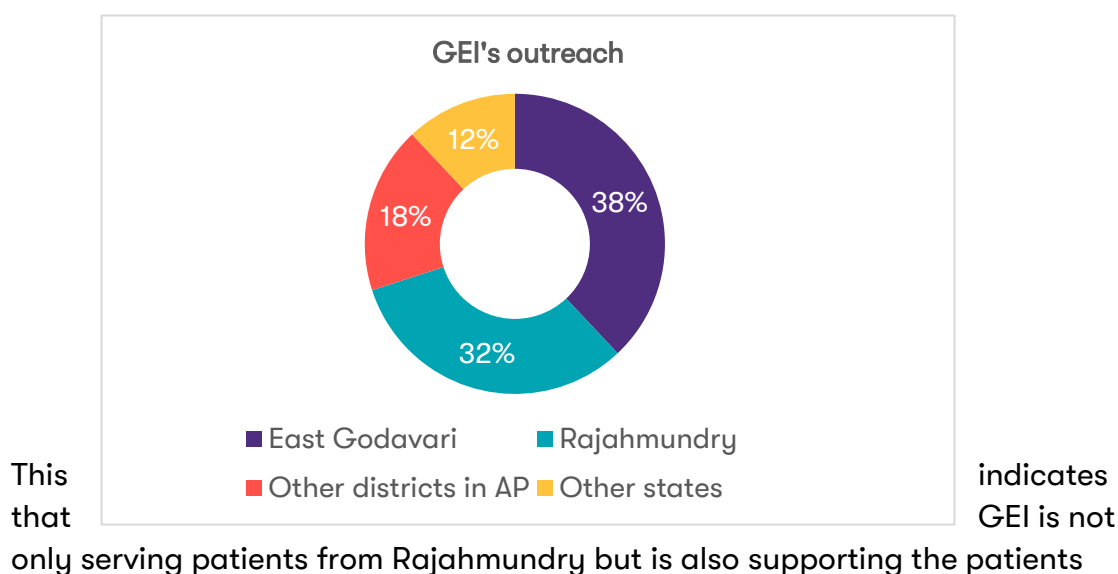
In terms of eyecare, Andhra Pradesh has a high incidence of moderate visual impairment in addition to blindness.²⁷ Considering this gap, GEI has carefully positioned itself to provide opportunity for all, with a special focus on the impoverished. GEI's initiative originates from its recognition of the community's existing healthcare inequities. The organisation is rooted in the belief that access to quality eye care is a basic right that should be enjoyed by all, regardless of financial situation.

The current study examined how well the goals and framework of GEI address the interests and requirements of the surrounding community. This section presents the findings regarding the relevance of GEI's efforts.

GEI's outreach

The challenges faced by patients differ as per their locations due to several geographic as well as socio-economic factors. Thus, to understand the relevancy of GEI's efforts, it is important to understand the spread of the patients coming to the clinic in Rajahmundry.

For the same, patients were asked to indicate their residential location. 18% patients were from 11 districts across Andhra Pradesh. About 12% patients were from four (04) districts of Telangana. Overall, 68% patients reside outside of Rajahmundry, AP the location of the GEI's base location.



²⁷ Dandona R, Dandona L, Srinivas M, Giridhar P, Prasad MN, Vilas K, McCarty CA, Rao GN. Moderate visual impairment in India: the Andhra Pradesh Eye Disease Study. Br J Ophthalmol. 2002 Apr;86(4):373-7. doi: 10.1136/bjo.86.4.373. PMID: 11914201; PMCID: PMC1771093.

from neighboring districts and states. This is the result of a successful approach of GEI focusing on awareness generation, availability of free of cost transport service, provision of free of cost accommodation for the patient, attendant post the surgery, and its empanelment with Aarogyasri.

Common gaps in services

The review captured the availability of eyecare facilities prior to GEI's existence in order to establish the relevance of the institute and its services. The respondents were asked to indicate which of the following was the key challenge in their geographical area prior to GEI's emergence, the possible gaps were:

- Lack of facilities – limited eye care hospitals, clinics, infrastructure, etc.
- Lack of doctors – limited trained eye care professionals such as ophthalmologist, optometrists, etc.
- Lack of awareness – limited understanding about eye healthcare

Over 60% patients interviewed shared that there was a systemic lack of eye care facilities.²⁸ They shared that they had no recourse and could either continue to suffer due to poor vision or travel to far off Tier 1 locations for treatment. Majority (40%) of patients from Telangana shared that limited awareness was their biggest challenge with regards to good eye healthcare. Patients shared that they were unaware about the consequences of neglecting their eye related issues and usually continued to suffer and / or ignore the problem. Overall, about 15% patients shared that they experienced lack of trained eyecare doctors and specialists at the facilities / clinics they could afford.

Eye related issues faced by patients

In order to understand the extent of difficulty faced prior to the treatment, patients were asked to elaborate on the issues they faced. The table below details out the issues faced by majority of patients by gender and age group.

<i>Gender</i>	<i>Age group</i>	<i>Most common issue</i>	<i>Percentage of patients</i>
Female	Below 45	Sensitivity to light and glare	57%
	46 to 59	Blurry vision	40%
	Above 60	Sensitivity to light and glare	32%
Male	Below 45	Blurry vision	50%

²⁸ Kovai V, Krishnaiah S, Shamanna BR, Thomas R, Rao GN. Barriers to accessing eye care services among visually impaired populations in rural Andhra Pradesh, South India. Indian J Ophthalmol. 2007 Sep-Oct;55(5):365-71. doi: 10.4103/0301-4738.33823. PMID: 17699946; PMCID: PMC2636013.

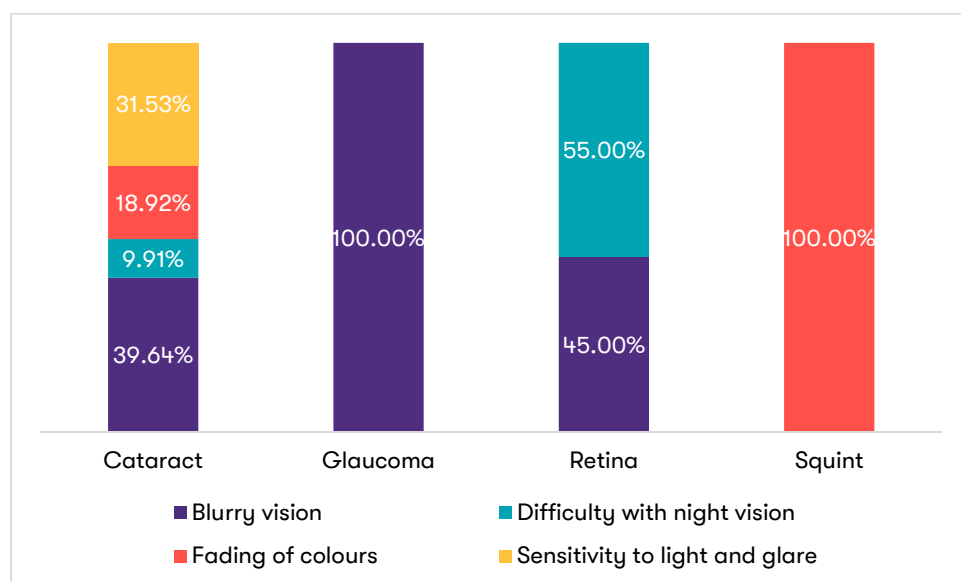
Gender	Age group	Most common issue	Percentage of patients
	46 to 59	Blurry vision	62%
	Above 60	Blurry vision	37%

As evident from the data above, the most common issues faced by the patients at GEI was either blurry vision or sensitivity to light and glare. Few patients reported that they suffered from difficulty with night vision (16%) and fading of colors (16%).

Blurry vision was a major issue for males (all age groups) and female age group 46 to 59 years. Female patients in age group below 45 and above 60 suffer most commonly from sensitivity to light and glare.

Treatment availed

More than 80% patients at GEI had undergone / waiting to undergo a cataract²⁹ surgery.



Patients who complained of blurry vision underwent treatment for either cataract, glaucoma or vitreoretinal. Blurred vision more than once or twice a month has a detectable and significant impact on functional status and well-being, especially in role limitations due to physical health problems³⁰.

²⁹ A cataract causes the lens to become cloudy when it is typically clear. Cataracts can cause blurry vision and increase the glare from lights, and it can eventually affect vision. Cataract surgery is a procedure to remove the lens of the eye and, in most cases, replace it with an artificial lens. Cataract surgery is common and is generally a safe procedure. (MayoClinic.org, 2023)

³⁰ National Library of Medicine, P P Lee 1, K Spritzer, R D Hays, "The impact of blurred vision on functioning and well-being", August 1997

Majority of patients who underwent a vitreoretinal³¹ surgery had complained about difficulty with night vision. All patients who complained about sensitivity to light and glare underwent cataract surgery to improve their vision.

All the patients suffering from fading of colors were treated for squint. Patients with squint, also called strabismus, is where the eyes point in different directions may eventually suffer from lazy eye where the brain starts to ignore signals coming from the affected eye, so your child does not develop normal eyesight³².

These findings are crucial in illustrating GEI's efforts to expand its presence in the states of Andhra Pradesh and Telangana. Since its inception, GEI has remained committed to its mission to mitigate avoidable blindness in order to transform the lives of the most marginalized populations. They have accomplished this by employing the best doctors in the field, adequately capacitating its staff, acquiring world-class equipment, and meticulously working round the clock to serve those in need. Furthermore, GEI's strategic location may have helped draw patients from all around Andhra Pradesh and surrounding regions.

GEI's efforts focus on offering customized services to match the unique requirements of its intended demographic, which highlights its relevance. Every aspect of the clinic's intervention, from providing free cataract procedures to performing vision examinations in isolated communities, is carefully tailored to meet the needs of its recipients.

“ ”

As a farmer, I am the primary provider for my family. My vision was impaired due to cataracts in both eyes, but surgery improved it and allowed me to return to work. Eye procedures are crucial in rural areas where people can adapt to physical injuries but struggle to adjust to losing sight.

M. Satyanarayana

Dedha Deta

³¹ The retina is the light-sensitive layer in the back of the eye that focuses images and transmits that information to the brain via the optic nerve. Vitreoretinal diseases are conditions that affect structures in the eye called the retina and the vitreous. (UT SouthWestern Medical Centre, utsmed.org, 2024)

³² NHS.uk, May 2023

Goutami Eye tele Medicine Retinopathy of Prematurity (GEMROP)

ROP is a vasoproliferative condition affecting the retinal vasculature of premature newborns that can lead to significant vision impairment if not discovered and treated on time. A combination of unregulated supplementary oxygen (first epidemic pattern) and the evolving but inconsistent care of very preterm newborns (second epidemic pattern) has led to the appearance of ROP in India and other developing nations, also referred to as the "third epidemic" of ROP.³³

Childhood blindness leads to long term effects on the child and family and these effects can potentially extend to other aspects of their lives, such as work, education, interpersonal connections, societal acceptance, and prospects for their future. Reducing childhood blindness can empower people to become active, contributing members of society and agents of change in their local communities.

The positive effects of treating childhood blindness could strengthen the economy by averting the loss of USD 118 billion in cumulative gross national income each year.³⁴

Blindness in infancy is considered a developmental emergency. In response to this grave pandemic, guidelines for screening preterm infants for ROP were developed in 2010 by the National Neonatology Forum in India. Soon after, in 2015, the Rashtriya Bal Swasthya Karyakram (RBSK) and the National Programme for Control of Blindness (NPCB) both incorporated ROP screening.³⁵ GEI joined this mission in 2015 by collaborating with local hospitals to identify cases through ROP screenings of preterm newborns.

Currently, GEI has partnerships with 15 Digital Health Centre of Excellence (DICE) centers to effectively conduct its ROP screenings.

Improved accessibility

The study gauged the accessibility of DICE centers to the patients in terms of distance. The 15 DICE Centres are spread across eight (08) districts within a range of 63 kms – 256 kms. This demonstrates a reasonable accessibility for residents within the state. The following table indicates the distance of the empaneled DICE centers from Rajahmundry, the base location of GEI.

³³ Anthikarisamy, S. E., Vinekar, A., & Patole, S. (2023, May 10). *Retinopathy of prematurity in India – what can we learn from the polio legacy?*. The Lancet Regional Health Southeast Asia.

[https://www.thelancet.com/journals/lansea/article/PIIS2772-3682\(23\)00070-7/fulltext#sectitle0010](https://www.thelancet.com/journals/lansea/article/PIIS2772-3682(23)00070-7/fulltext#sectitle0010)

³⁴ Borah, R. R. (2022, November 25). Cost benefit analysis of investing in Child Eye Health. The International Agency for the Prevention of Blindness. <https://www.iapb.org/blog/cost-benefit-analysis-of-investing-in-child-eye-health/>

³⁵ Pejaver R.K. Vinekar A. Bilagi A. (2010) *National neonatology forum, evidence based clinical practice guidelines, chapter on retinopathy of prematurity*. (guidelines) NNF India.

<i>DICE centres in Rajahmundry</i>	<i>Distance from Rajahmundry (in kms)</i>
W. Godavari	63
Konaseema	65
Elluru	98
Krishna	155
NTR	160
Guntur	196
Palnadu	256

The placement of DICE centres across a wider geography of the state enables improved access without the barrier of long distances or transportation challenges. This may also ensure prompt intervention and timely care, thereby minimizing the risk of vision loss or other complications in premature babies. This may also be convenient for patients in follow-up or routine checkups that ensures a continuum of care. Apart from the DICE centers, GEI provides ROP treatment in its base hospital ensuring increased reach.

Basis interaction with parents, it could be inferred that all the infants were currently under one year of age. All of them received ROP treatment within three months of birth, which implies prompt attention through case analysis, removing the possibility of crucial details being overlooked on an individual level. Based on case severity, ROP cases require two stages of treatment. Injectables are used in some cases, while laser technology is used in more serious situations.

GEI vision centers

In the last few decades, the notion of vision center (VC) has garnered momentum among major eyecare outfits in India.

A vision center (VC) is a permanent eye care facility that serves as the community's first point of contact by providing eye care services by a qualified eye care professional who works only for the VC.

VCs offer easily accessible eye care services and allow people with chronic blinding eye problems to simply check their eye health status³⁶.



Vision centre, Kothapeta



Optometrist examining patient at Vision centre, Kothapeta

GEI has leveraged this strategy by creating a networking chain of nine (09) vision centers in different districts of Andhra Pradesh. Each vision center is headed by a certified optometrist and is equipped with auto-refractometer, slit lamp, ophthalmic refraction chair unit and ophthalmic trial lens set. GEI identifies such physical stores in remote locations that can serve population within a radius of 10-15 kms. Patients can walk-in for general eye screenings for a nominal cost of up to INR 100 and purchase spectacles basis requirement. Patients who require additional intervention are referred to GEI.

Complementing the efforts of ecosystem

Goutami Eye Institute (GEI)

GEI serves as model of convergence by integrating its services with existing government health schemes, thereby expanding the reach and benefits of its services. This alignment has not only broadened health coverage but also enhanced the overall healthcare infrastructure and patient experience.

Enhanced coverage

GEI effectively leverages government schemes like AarogyaSri to extend its services beyond just BPL households. While AarogyaSri is meant to support BPL families, GEI ensures that even those not covered under this scheme can access its high-quality eye care services. This extension of services means that an increased portion of the population, including middle-income families, benefits from comprehensive eye care. About 85% of GEI's patient population are AarogyaSri, and the remaining 15% are paying patients. By

³⁶ Khanna, RC., Sabherwal, S., Sil, A., Gowth, M., Dole, K., Kuyyadiyil, S., Chase, H. Primary eye care in India - The vision center model. Indian J Ophthalmology. 2020 Feb;68(2):333-339. doi: 10.4103/ijo.IJO_118_19. PMID: 31957722; PMCID: PMC7003605.

not limiting their services to BPL households, GEI ensures that more people can prevent and treat eye conditions, contributing to overall public health improvement.

Inclusive approach

GEI provides treatments for a wide range of eye conditions, many of which are not covered under standard government programs. This includes advanced procedures for cataracts, glaucoma, and retinal diseases, as well as specialized pediatric ophthalmology services. By addressing a broader spectrum of eye care needs, GEI ensures that patients receive holistic treatment. For instance, conditions like diabetic retinopathy and complex corneal disorders require specialized care that may not be available under basic health schemes. GEI fills this gap, ensuring that patients have access to necessary treatments without the financial burden, which significantly improves their quality of life. The following table demonstrates the total number of screenings and surgeries performed by GEI across some its key services since its inception.

Treatment	No. of patients screened since inception	No. of patients undergone surgery since inception
Cataract	4,95,899	48,690
Retina	2,10,000	22,009
Glaucoma	15,802	502
Squint	31,000	850
ROP	20,846	1,776

Empanelment

The collaboration between GEI and government health schemes has led to a noticeable increase in patient footfall. This is primarily due to the trust and credibility that come with being associated with recognized government programs. Patients feel more secure and confident in seeking care at GEI because it is endorsed by these schemes.

GEI's comprehensive network includes empanelment with 15 DICE centers across Andhra Pradesh for the treatment of ROP. This strategic partnership ensures that premature infants at risk of ROP receive timely screening and treatment. A trained technician from GEI visits these centers on a monthly

basis who conduct initial screenings. The images captured are then sent to GEI for further analysis and treatment planning by ROP specialists. This network ensures that even in remote areas, infants receive the critical care they need without delay, significantly reducing the risk of blindness. The presence of these centers enhances GEI's reach and effectiveness, ensuring comprehensive eye care services are accessible across the state.

Awareness about GEI initiatives

GEI works to improve the quality of life and socioeconomic prospects of marginalized communities by diagnosing, treating, and preventing visual impairments.

GEI ensures that its services reach people who would otherwise be left in despair over avoidable blindness by executing targeted outreach activities and community engagement efforts. The review gauged the awareness levels among beneficiaries regarding GEI and its services. 67% patients revealed that they came to know about GEI through word of mouth from friends and relatives, while 23% indicated the source of awareness to be community awareness camps organised by GEI.

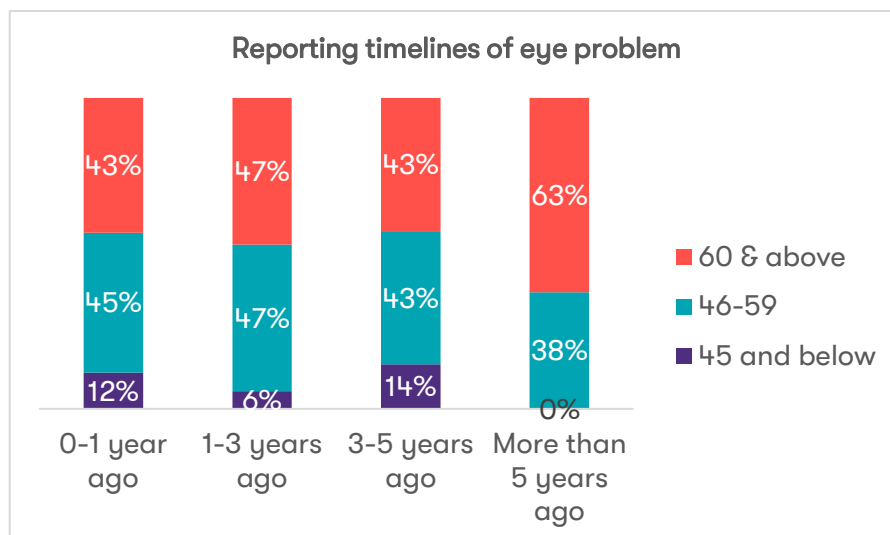
Due to the availability of quality medical service, experiences of patients, and awareness camps help spread positive feedback about GEI and its services.

However, only 2% of respondents said they learned about GEI from the media (such as pamphlets, newspapers, social media, etc.). Given that the media can be an effective tool for raising awareness of GEI and its services, they may take this into consideration.

Awareness about eye issue and seeking treatment

Blindness and vision impairment remain significant public health issues in India that must be addressed. Cataracts and refractive errors remain the leading reversible causes of visual impairment within India's rural population. As such, the current review focused on collecting insights into patients' awareness of eye disorders and reporting periods.

43% patients in the age group 60 years and above reported their eye issue in the first year of occurrence. Additionally, 45% patients in the age group of 46-59 years also reported their eye issue within the first year. **This highlights increased awareness about the importance of reporting health issues, improving their overall health-seeking behaviour.**



This could be attributed to GEI's enhanced efforts in organizing awareness camps, as well as the frequency and reach of its screening camps throughout the state. Awareness camps are conducted every Monday and Wednesday. The camps follow a standard process and operate basis a roster prepared by the AGM of Administration. GEI visits approximately 15 villages in Andhra Pradesh in a month. Mobilization for awareness camps is accomplished by microphone announcements and with the assistance of the community leader. Conducting camps in tribal settlements require prior approval. Additionally, efforts have been made to enhance screening for and diagnosis of specialty eye disorders through camps, as well as referral and treatment compliance.

Digital mode of recording and managing campaign data has been introduced. However, due to time constraints faced by outreach staff, data is often maintained on paper.

Goutami Eye tele Medicine Retinopathy of Prematurity (GEMROP)

Elimination of ROP through telemedicine

With almost 3.5 million premature babies born each year, India has a dubious title of being the country with the highest number of premature births. This burden has raised the risk of blindness due to retinopathy of prematurity (ROP). While screening for ROP is a useful and economical practice, there are many places where it is difficult to find qualified examiners who can perform retinal examination after dilating the pupil. Remote screening with retinal imaging is an alternate technique that could improve ROP treatment. This approach has been adopted by GEI to combat childhood blindness through its telemedicine and mobile health camps.

During the GT team's qualitative interaction with staff at GEI, it was understood that **GEI was the first hospital in the entire state of Andhra Pradesh to acquire a RetCam-** a diagnostic tool to check the retinal blood

vessels' circulation and help find any anatomical problems. Dr. Srinivas, the CMO at GEI, indicated **the success rate of GEI's ROP to be close to 98% when identified on time.**

According to the GEI staff, the success of the GEMROP initiative could be attributed to the telemedicine and awareness camps. GEI has meticulously trained its technicians who are part of its awareness camps to facilitate community camps and identify critical cases. They have been capacitated to use the RetCams to take pictures of potential cases and share with doctors at the hospital in real time. Depending on how serious the cases are, either the patients are referred to the hospital, or the doctors visit them to offer treatment. Over time, the team has become capable of identifying cases independently.

Increased penetration in tribal regions is anticipated in the upcoming phases of GEI's outreach initiatives. A few schools have been selected to host such camps, but proper documentation and authorization are in the works, as revealed by Dr. Srinivas.

Provision of comprehensive counselling

Good communication is essential for creating strong and productive connections with parents, and it must begin the day a preterm newborn is admitted to the neonatal unit.³⁷ Members of the medical team can include parents by speaking clearly and simply about their baby's care needs and how they can assist. This fosters trust in the relationship. It also helps parents feel like they are part of the team and understand how crucial their job is.

GEI provides in-depth counselling not only to parents but in some cases, also to extended relatives of the preterm babies. During the GT team's interaction with the GEI's CMO, it was revealed that one of the major challenges that the GEMROP team faces is to convince parents and family members about the importance of ROP. Grandparents frequently oppose it due to their conservative worldview and cultural taboos, which continues to be a significant obstacle.

During interactions with the parents, it was **mentioned that the hospital staff provided them with sufficient counselling before administering the procedure, which helped them comprehend its significance.** This demonstrates how successful GEI's timely counselling sessions for parents and other close family members are in getting timely consent to begin treatment without wasting any crucial time.

³⁷ Flanagan, J. (2017, November 11). Community Eye Health Journal "involving the parents of preterm babies. Community Eye Health Journal. <https://www.cehjournal.org/article/involving-the-parents-of-preterm-babies/>

“

My child was delivered preterm and was in the NICU when the doctor advised us to get a ROP done. We knew about GEI since it is a well-known hospital in the state, and we were promised that world-class doctors would treat our infant. GEI has helped our family and our child to be happy and healthy, and for that, I will always be grateful.

Prashanthi Chittimenu

Rajahmundry

GEI vision centers

Accessibility to vision centres

The study assessed the distance of the VCs from Rajahmundry in order to capture the components of accessibility for routine check-ups and follow-up for patients. As shown in the table below, the nearest VCs are located at a distance of 35 kms, with the farthest being situated at a distance of 270 kms. This is crucial for understanding the **strategic network of VCs in terms of geographic reach, which ensures enhanced access to patients from all over the state, including rural areas**. GEI's provision of a free pick-up and drop-off service guarantees that patients are not hindered by distance or logistical concerns when seeking care.

Vision centre location	Distance from GEI Rajahmundry (in kms)
Jaggampeta	35
Kothapeta	35
Tallarevu	50
Mummidivaram	60
Tuni	65
Tatipaka	70
Narasapuram	90
Machilipatnam	270

“ ”

I do not get to go to hospitals very often. Additionally, the cost of private clinics and hospitals is very high, and I cannot afford it. But because the VC is close by, I go there whenever I have free time, and the services are good and reasonably priced. I was also referred by this VC to get my cataract for free at GEI.

Subba Laxmi Gaddam
Kothapeta

Awareness about vision centers

The study gauged patient's awareness levels of the VCs. The study found that **although patients appear to have a reasonable level of awareness about VCs, the data shows an equal lag in awareness among the patients.** This could be an outcome of limited advertising strategies currently employed by the VCs.

Basis qualitative interactions with VC staff, it could be inferred that the VCs only hand out discount coupons to existing patients to distribute to their acquaintances. There are no active door-to-door campaign or community level activities to spread awareness about the existence of the VCs. GEI may consider capacitating its VC staff to conduct awareness sessions in order to improve eye care awareness among rural populations and enhance awareness about GEI's brand and services.

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Every month we screen 300 patients and our referrals to GEI are about 15 patients monthly. The community members are very happy that GEI also supports their transfer to and from the base hospital in Rajahmundry in addition to the cost of the treatment required.

Sunitha Madipati
Purushakapalem

Referrals and surgeries from VCs

The vision centers serve as a crucial channel to tap population from the most remote corners of the state in need of eyecare support. Till date GEI's network of nine (09) VCs has facilitated 2,27,650 screenings, 8,671 referrals and 8,390 surgeries. This demonstrates the franchises' strong effect in guaranteeing last-mile connectivity to reach grassroots areas and provide equitable service to all. During the interaction with the VC staff at Mummidivaram, it was reported that patients receive basic counselling at the VC to educate them about their issues and encourage them to visit the GEI hospital for additional treatment. Once consent is obtained, GEI sets up a complimentary pickup service for patients, ensuring hassle-free access to care.

Impact unveiled: assessing the transformative reach of GEI's eyecare initiatives on communities

Goutami Eye Institute (GEI)

The current study investigated the degree to which the interventions has produced or is predicted to produce noteworthy higher-level consequences that are planned or unintended. This section discusses the impact generated by GEI in terms of enhancing community knowledge on eye care, health outcomes and overall quality of life.

Knowledge and attitude towards eye problems

As highlighted in the previous sections, one of GEI's key priority areas is to extend the outreach of their services and enhance community members' knowledge about the importance of eye health. In order to assess this, patients were probed about their awareness on eye issues. The findings indicate that prior to GEI's interventions, there was a significant lack of understanding among underprivileged communities about eye problems and availability of treatment. 71% of beneficiaries reported poor vision before receiving surgical intervention, while 29% indicated very poor vision. Post surgeries were performed, 73% of the beneficiaries reported their vision as good and 27% reported vision as very good. Patients also reported common issues like decreased night vision, light sensitivity, and blurred vision prior to receiving care from GEI. Furthermore, patients revealed about having a pervasive belief before receiving support from GEI that eye difficulties were inevitable with ageing and could not be cured, leading to delays in seeking medical help and affecting their quality of life.

During discussions with beneficiaries, significant changes in knowledge and attitudes towards eye health over the years could be noted. Before acquiring services from GEI, many patients admitted being hesitant of seeking treatment, partly due to several misconceptions about medical procedures and cultural stigmas.

However, GEI's consistent outreach initiatives, including eye health camps and mobile vans, have resulted in a notable transformation in people's perception and awareness levels. People who were once unaware of the treatability of eye conditions now actively participate in screenings and seek treatment when needed.

Interactions with patients indicated their willingness to travel up to 30 kilometers or more to seek eyecare services at GEI, indicating a shift in attitudes and knowledge levels. This reflects the growing trust in GEI's services and their commitment to providing accessible, high-quality eye care to everyone. While knowledge of GEI's beneficial work has expanded, there is still a need to reach more remote places and generate awareness, especially among the most vulnerable populations such as elderly, uneducated, and tribal communities. This can be accomplished through expanding GEI's outreach mechanisms, ensuring that the advantages of improved eyecare are available to everybody, regardless of socio-economic status.

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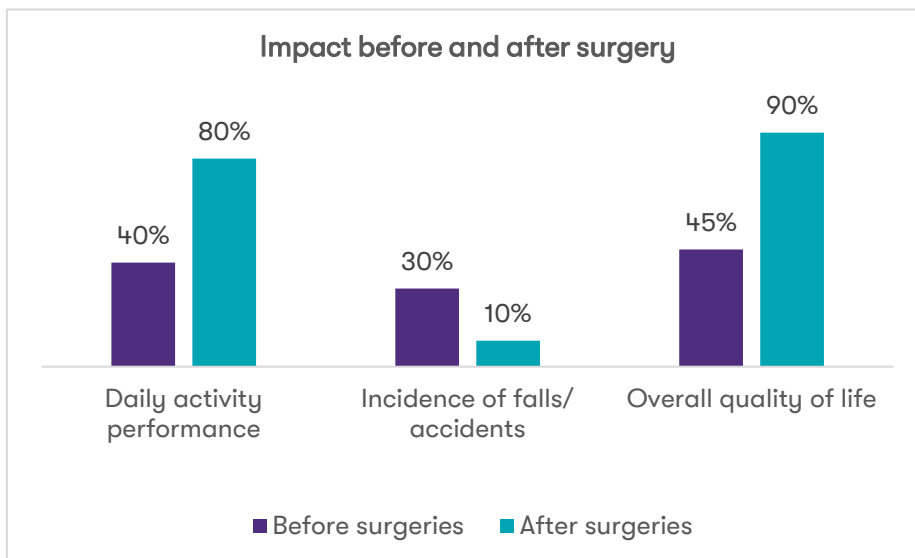
I used to neglect my eye health because I believed my vision problems could not be fixed. However, during a screening camp in my village, the doctor helped me realize that cataract can be removed through surgery. It was a life-changing moment for me, and I am grateful to GEI doctors for their guidance.

C. Ramnamaa

Dainikam, Andhra Pradesh

Health outcomes and quality of life

The study also assessed how GEI's work has improved eye health and improved the quality-of-life following eye surgery. Analysis of the responses indicates that, before the surgeries, only 40% of patients reported being able to perform daily activities effectively.



However, after the surgeries, this number increased to 80%, indicating restored functionality in their day-to-day lives. Patients revealed that improved vision significantly enhanced their ability to conduct daily tasks such as cooking, cleaning, and commuting, boosting their independence and ease of navigating day-to-day activities.

The study explored the impact of eye surgeries in augmenting quality of life and overall well-being of patients. Findings indicate the pre-surgery, only 45% reported good quality of life in terms of social, mental, and emotional health. However, post-surgeries, this figure surged to 90%, indicating heightened engagement in economic activities and the restoration of self-independence.

During interactions with beneficiaries, impactful anecdotes emerged, highlighting their sincere gratitude for restored vision and the consequent empowerment it offered. They expressed newfound confidence, revitalized social connections, and a sense of empowerment to pursue their aspirations. Furthermore, patients gave moving testimonials of the kind attention and assistance they received from GEI's medical staff, emphasizing the personal touch that made their treatment experience unique.

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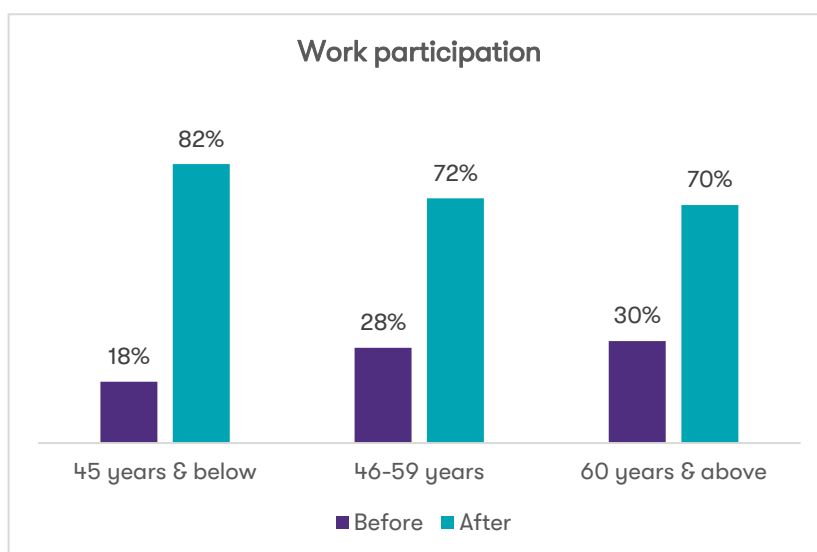
During my cataract surgery at GEI, I received exceptional care and support during my three-day stay, offering free accommodation, meals, and surgery, which I did not expect from a big hospital.

M.Sathyavathi
Guntur

Productivity impact insights

The study also documented the impact of treatments that stretched beyond improved vision. Basis interactions with patients, it could be understood that there was a notable increase in employability among patients across different age groups.

Analysis of the responses indicate a notable transformation post-surgery across different age groups. Patients within the age group of 45 years and below revealed that their ability to participate in workforce surged from 18% to 82%, marking a significant improvement in work effectiveness.



Similarly, individuals aged 46-59 years, primarily engaged in farming activities, saw a remarkable boost in work participation from 28% to 72% post-surgery, enhancing their sense of accomplishment. Even among those aged 60 and above, work participation increased from 30% to 70%, highlighting the improvement in daily functioning for individuals. This demonstrates the surgeries' positive impact on both professional and personal spheres of the patient.

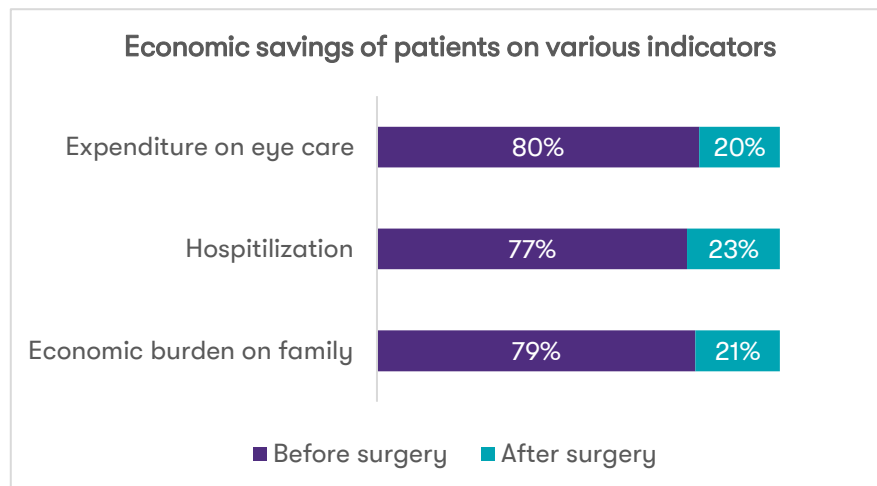
Furthermore, during interactions with patients, they mentioned how the operations improved their capacity to work and overall satisfaction. They were thankful for being able to go back to work and support their families. Many people reported feeling more active and driven following the surgeries, demonstrating how improved vision made them feel more fulfilled.

Economic savings

The study assessed the economic impact of eye surgeries at GEI. The analysis indicates that before the surgeries, 79% of patients reported that their eye problems placed an economic burden on their families.

However, after undergoing surgeries at GEI, only 21% of patients highlighted a reduced economic burden and their increase ability to save,

due to decreased expenses on consultation charges and medicines. Additionally, there was a notable reduction in hospitalization and frequent visits to ophthalmologists, with only 23% of patients requiring such visits post-surgery. Moreover, expenditure on eye care, including medicines and diagnostic tests, significantly decreased from 80% to 20% after surgeries at GEI.



These findings underscore the financial relief provided to patients and their families by the eye surgeries conducted at GEI.

Through interactions with beneficiaries, several poignant stories emerged that highlight the profound economic impact of GEI's services:

- **Transportation and allowance:** Many patients shared how GEI's provision of transport to the institute from their villages made a significant difference. For those in remote areas where transport was unavailable, GEI even provided a traveling allowance to cover their expenses to and from the institute. This support was crucial for families who could not afford the travel costs on their own. *"GEI provided end-to-end support in regaining my vision. Given my economic situation, it would have been extremely difficult for me to manage to commute all the way to seek treatment."*
- **Accommodation and meals:** GEI's comprehensive care extended beyond medical treatment to include free accommodation and meals during the patient's stay. For many families, this was a significant relief as they did not have the financial means to afford these necessities during the hospital stay. One beneficiary mentioned, *"Staying at GEI during surgery, with free accommodation and meals was a huge relief. We could not have afforded to stay in the city for my surgery otherwise."*
- **Free medicines and post-care follow-ups:** The beneficiaries also emphasized the importance of the free medicines provided by GEI.

Post-surgery, follow-up visits and the necessary medications were given at no cost, which alleviated the ongoing financial strain. A patient noted, *"After the surgery, GEI continued to support us with free medicines and follow-up care. This level of ongoing care ensured that we didn't have to worry about additional expenses."*

“ ”

I spent a lot on eye consultations and medicines but still could not figure out the issue with my eye. Since my consultation at GEI, I no longer need frequent hospital visits, and our overall eye care costs have dramatically decreased. During my retinal surgery at GEI, I stayed for three days with free accommodation and meals provided. The comprehensive care and support I received at GEI were exceptional. Had I gone to any other hospital, I would have had to take out a loan, but at GEI, all services were provided at no cost. This experience has been a tremendous relief for my family and me.

Narsimha Murti Kotipalli

Kakinada

Satisfaction levels of patients

In order to evaluate the services of GEI holistically and gauge beneficiary satisfaction levels, the beneficiaries were asked to rate the different parameters on a scale of 5 (1 being the lowest and 5 being the highest). Majority of beneficiaries who visited GEI hospital reported positive experiences across various service parameters.

<i>Indicator</i>	<i>Rating</i>
Accommodation & food	4.86
Registration process	4.83
Communication process	4.77
Post-op follow-ups & support	4.72

These high ratings underscore GEI's commitment to patient-centric care, further enhancing its reputation within the community. During interactions

with beneficiaries, GEI received praise for its exceptional services. These interactions emphasized GEI's comprehensive and patient-centric approach, reflecting its dedication to providing high-quality, accessible eye care to all members of the community. Beneficiaries highlighted the compassionate and attentive care provided by GEI staff, as well as the seamless registration process and clear communication channels throughout their treatment journey. Additionally, the post-operative follow-ups and ongoing support were noted as instrumental in ensuring positive treatment outcomes and overall satisfaction among beneficiaries.

Goutami Eye tele Medicine Retinopathy of Prematurity (GEMROP)

Advancing ROP awareness and intervention

The increased information and awareness about ROP through the GEMROP project has significantly benefited the community. By educating parents, healthcare providers, and community members about the risks, prevention, and treatment of ROP, there has been a marked improvement in early detection and intervention. 90% of parents felt more informed about the importance of regular eye check-ups for their infants. This data underscores the project's success in enhancing eye health outcomes and awareness in the community. This proactive approach has led to a reduction in severe visual impairment and blindness among premature infants. Enhanced training for medical professionals and the implementation of standardized screening protocols have ensured timely diagnosis and treatment, ultimately contributing to better visual outcomes and quality of life for affected children.

Parents satisfaction level on ROP treatment

The study also assessed parents' satisfaction levels with the ROP treatment their children received. Ratings were provided on a scale of 5 for different indicators:

<i>Indicator</i>	<i>Rating</i>
Communication with doctors on the treatment	5
Post treatment recovery of your child	4.93
Quality of life of child after ROP treatment	4.86

During interactions with parents revealed a high degree of satisfaction with the services provided by GEI for ROP. The majority reported significant improvements in their children's vision and overall well-being. Initially uncertain about the surgery, one parent noted remarkable improvement in their child's vision. Another highlighted exceptional post-surgery care, with smooth recovery and constant follow-ups by GEI staff.

Parents expressed profound gratitude for the care their children received at GEI. They emphasized exceptional communication with doctors, who explained every detail, allaying fears and enabling informed decisions about their child's treatment. The study highlights the high level of trust and satisfaction parents have in GEI's services, contributing to positive outcomes in ROP treatment.

GEI vision centers

Improved access to eye care services

The study evaluated the impact of the vision centre on improving access to eye care services for community members. Analysis of the responses indicates a high level of reliance on these vision centres. Majority of the respondents (56%) reported that having a vision centre has significantly improved their access to eye care services, addressing a previously unmet need in their community. Before the vision centres, quality clinics and specialized eye care facilities were either scarce or nonexistent.

During interactions with beneficiaries, respondents stated that having a vision centre in their villages helps bridge this gap by providing a local, reliable source of high-quality eye care services.

Enhanced linkages and eye care integration

The collaboration between vision centres and GEI has established a robust network of communication and eye care services across the region. Post-treatment, patients referred to the base hospital from the vision centres continue to rely on their local vision centres for follow-up care and ongoing support, creating a seamless continuum of care. This was further substantiated through interactions with beneficiaries, who believe that through the vision centres, they have access to GEI and, despite being in a remote location, can avail themselves of advanced eye care services. This integrated approach not only improves access to specialized eye care but also enhances patient trust and adherence to treatment plans, significantly improving eye health outcomes within the community. Additionally, this network fosters strong linkages between community-based care and specialized services, ensuring that no patient is left without the necessary resources and support.

Sustaining the vision: ensuring long-term impact and viability of GEI's eyecare endeavours

Considering the findings of the previous sections, it has been established that the hospital was able to increase accessibility to quality eye care

services in the community. The patients are majorly treated for surgeries related to issues pertaining to cataract, glaucoma, ROP, and squint. The services provided by hospital have been successful in reducing the out-of-pocket expenses for patients and increasing accessibility to quality eye care services. Below are the two aspects of sustainability considered after detailed discussion with beneficiaries and GEI staff on field.

Financial sustainability

At GEI, a financial strategy is placed wherein patients who can afford to pay are charged for services, usually at competitive prices in the region. The medical expenses received from paying patients usually helps in covering the costs of treatment for those who cannot afford it. This ensures that everyone, regardless of financial constraints, receives the necessary care they deserve. Additionally, GEI also leverages state government eyecare health scheme Aarogyasri that aims to provide universal health coverage to BPL families. Through the scheme, GEI covers the cost of the eye surgeries for the patients. Furthermore, GEI is partnered with employee health schemes for central and state government employees.

The Eye Foundation of America is the main source of funding for GEI, with additional support from a variety of corporate and charitable donors. Such funding assistance is crucial in meeting the hospitals' working capital requirements.

Social and institutional sustainability

GEI conducts numerous outreach and awareness sessions on eye health, with stakeholders encompassing students, teachers, and rural communities residing within a 25-80-kilometer radius of Rajahmundry. Over the past 19 years, these efforts have played a significant role in raising general awareness on eyecare, resulting in more walk-ins and referrals, as well as a notable increase in the total number of surgeries performed, both for BPL and APL patients. GEI's commitment to providing high-quality care is complemented by a continual increase in patient demand for eye procedures. According to the GEI team, surgical operations increased by approximately 18% between 2022 and 2024.

Surgery statistics: comparison between 2022-23 and 2023-24

Particulars	2022-23	2023-24
Total surgeries conducted	4045	4802
Surgeries under Aarogyasri	2862	3100

Furthermore, GEI's patient-friendly environment has fostered trust among patients from underprivileged communities, reflected in an 8% annual increases in Aarogyasri surgeries. These trends reinforce GEI's mission to eliminate avoidable blindness in society.

Capacity building initiatives

GEI Institute places a strong emphasis on extensive training programs tailored for various stakeholders, including students, healthcare workers, local company employees, and hospital staff. Through collaborations with schools, businesses, and medical facilities, the institute provides practical training to medical students, enabling them to acquire essential skills and firsthand experience. Additionally, its outreach efforts include eye care awareness sessions, which are conducted in schools. The institute establishes a strong basis for long-term sustainability by taking a comprehensive approach and engaging with all stakeholders, guaranteeing ongoing availability of high-quality eye care for the population it serves.

Section 5 – Case studies



Name- Nagarthanamaa
Age: 65 years

Nagarthanamaa, a 65-year-old housewife from Gokavaram, Andhra Pradesh, faced vision problems that led to unemployment and homelessness due to her inability to work.

Seeking help, Nagarthanamaa found Goutami Eye Institute, where she received free diagnosis and treatment for her retinal issues. The institute provided not only medical care but also accommodations and meals, offering her a sense of belonging and support.

Under Goutami's care, Nagarthanamaa regained her vision, confidence, and independence. She embraced simple joys like cooking and watching sunsets, once impossible for her.

The institute's intervention not only restored Nagarthanamaa's vision but also her hope and dignity. Her gratitude reflects the transformative power of compassionate healthcare.

Nagarthanamaa's journey exemplifies the profound impact of holistic care. Goutami Eye Institute's commitment to serving the community changed her life and left a legacy of compassion and healing.



Name- Venkata Ramana

Age- 57 years

Venkata Ramana, a 57-year-old individual, faced a significant challenge when he developed a serious retina problem that impacted his vision and rendered him unable to work. Lacking the financial means for treatment, he found himself in a difficult situation.

Venkata's life took a hopeful turn when a relative introduced him to GEI Services, a beacon of hope for those unable to afford treatment. Upon entering GEI, he was met with warmth and compassion. Despite his financial constraints, the staff provided him with top-quality treatment for his retina problem, treating him with care and respect.

Through GEI's intervention, Venkata regained his vision, along with his independence. Clear vision not only enabled him to return to work but also significantly enhanced his quality of life. The treatment process wasn't just about restoring his vision; it was also about restoring his dignity and self-confidence. The staff ensured he felt comfortable and informed throughout his treatment, providing free accommodation for his recovery.

Venkata's life underwent a remarkable transformation post-treatment. He regained the ability to work and provide for his family, a possibility he thought he had lost forever. GEI not only restored his vision but also granted him a newfound lease on life. He remains eternally grateful for the kindness, compassion, and exceptional care provided by GEI, which not only treated his medical condition but also uplifted his spirit.

Venkata Ramana's journey with GEI services exemplifies the transformative impact of accessible healthcare. GEI's commitment to providing quality treatment, regardless of financial constraints, restored Venkata's vision, dignity, and hope. His story underscores the significance of compassionate healthcare in restoring individuals' lives and enabling them to pursue their aspirations with renewed vigor.



Name: Rajigintha

Age: 66 years

Two years ago, Rajigintha encountered a cataract issue in both her eyes which resulted in extremely blurry vision. Owing to her destitute status, she could not seek medical support on her own and was not even offered help from close family members.

A widow, living on her own, she recollected her agony of managing household chores all by herself. Because her vision was poor, she would frequently injure herself by tripping over uneven surfaces or running into objects. One day, her neighbour saw her hitting into a door and came to her rescue. He was aware of GEI's services and immediately took her to Rajahmundry.

She was offered priority support owing to the severity of her issue. Following adequate surgical care and follow-up, all provided for free by GEI, she is now back on her feet. She expressed immense gratitude to GEI and its services.



Name- K. Venkaxmi

Age- 46 years

At 46, K. Venkaxmi faced a life-altering diagnosis of a retina problem, plunging her into a challenging journey marked by familial unsupportiveness and financial constraints hindering treatment. However, her fortunes changed when introduced to Goutami Eye Institute (GEI), where she found not just medical care but also invaluable emotional support. From the moment she entered GEI, Venkaxmi was embraced with warmth and compassion, igniting a newfound sense of hope.

Under the expert care of GEI, Venkaxmi underwent successful treatment, experiencing a significant improvement in her vision. This restoration not only revived her physical sight but also reignited her inner confidence and happiness, enabling her to reclaim independence and resume work. Moreover, regaining control of her health empowered Venkaxmi, freeing her from reliance on others. Her transformative journey with GEI serves as a testament to the institute's commitment to holistic care, inspiring her to share her story and advocate for GEI's exceptional services.

Name- Krishnamurthi

Age: 52 years

Krishnamurthi, a dedicated farmer from a humble village, faced a dire predicament when glaucoma threatened his vision, jeopardizing his livelihood and family's well-being. As his eyesight deteriorated, so did his ability to tend to his fields, leading to financial hardship and emotional distress. However, hope emerged when he learned about GEI through a fellow farmer's recommendation. Despite initial skepticism, Krishnamurthi's visit to GEI proved transformative as he was met with compassion and respect, and his diagnosis confirmed the need for surgery. GEI's promise of free treatment amid his financial constraints illuminated a path forward, instilling hope in his darkest hour.

The successful surgery not only restored Krishnamurthi's vision but also rekindled his optimism and passion for farming. With meticulous post-operative care and unwavering support from the GEI team, Krishnamurthi regained clarity of sight, enhancing his productivity and revitalizing his family's income. His journey with GEI stands as a testament to the institute's commitment to restoring hope and dignity. Through their selfless dedication, GEI not only healed Krishnamurthi's eyes but also renewed his spirit, granting him a second chance at life and reaffirming the transformative power of compassionate healthcare.

Parent name- Alkeya Gorrela

The birth of their premature baby was accompanied by the daunting diagnosis of Retinopathy of Prematurity (ROP), threatening the newborn's vision and casting a shadow of concern over the family. Despite their determination to seek treatment, the reluctance of their in-laws compounded the emotional distress. However, their search for hope led them to Goutami Eye Institute (GEI), renowned for its expertise in complex eye conditions. Here, compassionate doctors not only confirmed the diagnosis but also provided them with clear communication and empathetic support, instilling newfound hope amidst uncertainty.

The expert team at GEI conducted precise treatment with unwavering care, ensuring their baby's healthy vision. Diligent post-operative care and regular follow-up appointments guided their child's progress, culminating in the joyous outcome of a vibrant one-year-old with normal eyesight. This transformative journey not only underscores the importance of early detection and treatment of ROP in premature infants but also highlights the profound impact of GEI's specialized care in restoring hope and peace to many families. To witness their child thriving into a healthy, happy individual reaffirms the transformative power of timely medical intervention and compassionate care provided by GEI. They are deeply grateful to the doctors and staff at GEI for granting their child the gift of sight and a promising future.

Section 6 – Suggestions

Securing long-term financial viability

- **Diversify income streams:** GEI may consider exploring ways to diversify its income sources outside of the conventional fee-for-service framework. This could entail seeking funding for certain projects or programmes through CSR partnerships, growing charitable relationships, and looking into revenue-generating ventures like retail eyeglasses or supplementary services sales.
- **Execute cost-reduction strategies:** Interviews with GEI staff revealed that there is a regular lag of up to 5-6 months for the Aarogyasri payments to get credited. This is a major setback considering the maximum volume of GEI patients is composed of Aarogyasri patients. The institute is at break-even in terms of its revenues. However, considering the nature of its services a contingency fund should be perceived as crucial for being able to continue GEI's community activities such as awareness camps, provision of free food, accommodation, stay and so on. Additionally, GEI might consider undertaking a periodic comprehensive evaluation of operational expenses to find areas for cost containment.

Streamline patient data management system

- **Standardize data entry and record management practices:** Although GEI has transitioned to a cloud-based platform called *Netram* to centralize patient data, end-to-end data is not captured across all interventions. Qualitative interviews with GEI employees revealed data management to be a significant issue with regards to the awareness camps, where staff members typically retain data on paper because some remote locations lack internet connectivity. Accurate patient data management may aid in enhancing diagnostic accuracy, treatment planning, and patient outcomes. GEI may consider upgrading the software to make it operable even without internet connectivity and establish standardized data entry and coding practices for easier organization and comprehension of the data.
- **Train staff on data collection and management standards:** GEI may consider offering its employees thorough training on data management procedures, such as data entry, privacy laws, and security measures. By providing employees with the required training, GEI might be able to minimize data handling errors and guarantee adherence to best standards. This could be beneficial for GEI eventually since proper patient data management minimizes data input errors, cuts down on superfluous paperwork, and simplifies administrative procedures. Additionally, well-managed patient data is

an invaluable resource for research and quality improvement programmes aimed at expanding clinical knowledge and improving healthcare delivery.

Focus on strengthening operational efficiency

- **Optimize patient flow management:** GEI may use techniques, such as appointment scheduling software and quick registration procedures, to optimize patient flow and cut down on wait times. Having more consultation desks, hiring more employees, or recruiting volunteers to help with patient registration and early screenings on busy days could all help achieve this. In addition to maximizing patient satisfaction, this would guarantee prompt access to care without sacrificing quality.
- **Empowering staff through training and development:** To help employees improve their skills and competences, GEI may offer professional development and training opportunities. This needs to be considered for all of its service verticals, including the main hospital staff, the technicians running awareness campaigns, the optometrists and other staff at its affiliated VCs, and others. Staff members who receive adequate training are often more effective, efficient, and engaged, which enhances both operational performance and patient satisfaction.

Comprehensive marketing and branding strategy

- **Enhanced visibility through marketing:** To enhance visibility and attract a diverse audience in and around Rajahmundry, GEI should implement a comprehensive marketing and branding strategy that combines digital and traditional methods. On the digital front, leveraging social media platforms such as Facebook, Instagram, and WhatsApp will help connect with local communities. Sharing engaging content, including success stories, patient testimonials, and educational posts about eye health, will raise awareness. Targeted advertisements can reach specific demographics, emphasizing GEI's advanced technology and inclusive services. Optimizing the website for local search results and ensuring it is user-friendly and regularly updated will attract more visitors from the city and surrounding areas.
- **Consistent Branding:** Developing a consistent brand message that highlights GEI's commitment to high-quality care, advanced technology, and compassionate service for all is essential. Professional design elements should be used in all marketing materials, ensuring inclusive messaging that emphasizes GEI serves everyone, not just the underprivileged. By sharing stories of diverse patients and their positive experiences, and highlighting the institute's

advanced technology and skilled doctors, GEI can attract paying customers seeking high-quality eye care.

Enhanced clarity in objectives

- GEI is recommended to refine its objectives to align more closely with its broad vision of being a cost-effective center for excellence and a preferred provider of ophthalmic care. While the vision and mission statements emphasize the importance of providing high-quality eye care to all, including education and research, specific, measurable objectives that would provide clear direction for the organization's activities and growth.
- Clear objectives are essential for guiding decision-making, prioritizing resources, and measuring impact, ultimately enhancing the organization's effectiveness and sustainability. Without clear objectives, GEI may struggle to focus its efforts, allocate resources efficiently, and demonstrate its impact, which could hinder its ability to achieve its vision and fulfill its mission.

Post operative Complication tracking system

- To enhance the quality of care and patient outcomes at GEI, it is recommended to implement a comprehensive complication tracking system. Currently, GEI relies solely on feedback forms for post-operative follow-up, which may not capture all relevant information, particularly regarding complications from surgeries. While there is a centralized software system in place, it does not yet track complications.
- By establishing a system to track complications, GEI can identify trends and recurring issues, enabling timely course correction and improving patient care. This system could include standardized protocols for recording complications, regular reviews of complication data, and integration with existing patient follow-up mechanisms. By implementing such a system, GEI can enhance its ability to provide high-quality eye care services and improve patient outcomes.

Section 7 – Conclusion

The initiatives and services provided by GEI demonstrate a steadfast commitment to addressing crucial eye health issues and preventing avoidable blindness. Through the rural vision centers and by adopting an inclusive approach through community eye camps, surgical interventions, mobile health vans, school health programs, and ROP screenings, GEI emphasizes the importance of collaborative efforts in achieving meaningful and sustainable outcomes. These efforts reach diverse demographics, including premature babies, older adults, school students, and the broader community.

With over 80% of learning happens through vision and GEI's initiatives serve as a beacon of hope, catalyzing positive change in eye health, education, gender equality, economic well-being, and the reduction of inequalities within the communities they serve.

Way forward

GEI aims to be a cost-effective centre of excellence and the preferred provider in ophthalmic care for all communities it serves. Committed to ending avoidable blindness, GEI provides high-quality, accessible, and affordable eye care. Their expansion plan includes establishing a new eye facility spread across an area of approximately 1 lakh sq. ft. in Rajahmundry, Andhra Pradesh. The hospital



Upcoming GEI hospital in Rajahmundry

would have world class facilities and would aim to attract patients not only from Andhra Pradesh but also from neighboring states.

The new hospital will address several critical needs including a dedicated training center and a school for blind children, ensuring continuous educational support and professional development. Constructed according to NABH standards, the new facility will resolve existing space constraints, allowing for enhanced service delivery and future growth. Additionally, the hospital will establish an eye donation bank and comprehensive cornea services, including dedicated specialists, to improve cornea facilities significantly. These advancements will enable the new hospital to provide high-quality ophthalmic services and better support the community. Looking ahead, GEI strives for steady growth to care and through their services, create better lives for people from all socio-economic backgrounds.