

**The Role of NGO: Canadian Eyesight Global in Targeting Preventative Blindness in Rural India**

Dr. Munsa Kaur Rana BSc, OD

May, 14 2021

Inter-American University of PR  
School of Optometry

We, the undersigned, accept this monograph

**The Role of NGO: Canadian Eyesight Global in Targeting Preventative Blindness in Rural  
India**

To satisfy the senior thesis requirement in partial fulfillment for

The Degree of Doctor of Optometry  
Date Submitted:

Dr. Héctor Santiago (Advisor)



Dr. John Mordi (Director of Thesis)

Dr. Ángel Romero (Dean of Academic Affairs)

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## **Acknowledgments**

The author wishes to acknowledge support from Canadian Eyesight Global, Anup Singh Jubbal, MSM, (CEO and Founder), Recipient: "**1997 Meritorious Service Medal**" from the Governor General of Canada. along with Mrs. Saroop Kaur Jubbal (Co-Founder), supported by Rotary Clubs, CEG Board of Directors , dedicated volunteers, his children and grandchildren.

### **Abstract**

Rural populations comprise more than 65% of India's population. Additionally, India is home to one-fifth of the world's visually impaired people (Murthy et al., 2005). Within these populations, poverty is substantial, and the barriers to receiving healthcare and vision care are exceedingly vast. Healthy vision positively influences an individual's quality of life and interactions within society. With the prevalence of preventable blindness in rural India on the rise, non-government organizations (NGOs) such as Canadian Eyesight Global (CEG) must step in and gap the bridge between healthcare and rural populations in India through vision screenings and free cataract surgeries (Prathiba et al., 2011). Canadian Eyesight Global, a non-profit organization, started 32 years ago with the mission to end preventable blindness globally. Due to the increased lack of vision care, free vision screenings can help meet the unmet needs of these populations. This paper will explore the importance of Canadian Eyesight Global in bridging the disparity between preventable blindness in rural India and vision care to determine if these screenings conducted by CEG are helpful and necessary.

*Keywords:* NGO, blindness, preventable blindness, health inequity, vision screenings, rural India, rural Punjab, community engagement, charity, Canadian Eyesight Global, CEG

## **Introduction**

Canadian Eyesight Global, formerly known as Project Eyesight-India, was founded in 1989 by an immigrant entrepreneur Anup Singh Jubbal with the sole mission to help restore preventable blindness in Rural India (CEG, n.d.). What started as a charity geared towards funding cataract operations for India's indigent rural populace later became an avenue for free vision screenings across rural India and Canada in 2004 (CEG, n.d.). It also became a hub for continuing to fund cataract surgeries for those in desperate need of them (CEG, n.d.).

Canadian Eyesight Global is a registered charity composed of optometrists, ophthalmologists, business leaders, hundreds of Rotary Clubs, hospitals, para-medical staff and unlimited volunteers, all with the joint mission to end preventable blindness and restore vision for those in poverty, locally rural India as well as globally. To explain, rural India has many health and social barriers. Those under the average income have a desperate need of healthcare, vision care, and beyond (CEG, n.d.). Societal hierarchy plays a huge role in healthcare inequity. Due to the lack of adequate education, nutrition, sanitation, and the immense amount of physical and mental trauma in these lower societal, economic groups, the demand for healthcare increases as the health of these patients declines (Flaxman et al., 2017). In essence, Canadian Eyesight Global aims to help those who cannot help themselves and fall victim to the barriers of inaccessible vision healthcare. For over 32 years, Canadian Eyesight Global has developed vision health screening programs with enhanced facilities and outstanding results in over 40 different villages across India and more than 50 vision screenings across Canada. Approximately 80% of the world's blindness is preventable, from simple surgeries to spectacle-related refractive

error to prescribing simple drops (Flaxman et al., 2017). Canadian Eyesight Global takes full advantage of uncomplicated preventative techniques by offering them to those in need.

### **Historical Review of Work by Canadian Eyesight Global (ECG)**

In 1989, when Canadian Eyesight Global was officially animated, the funding of cataract surgeries for underserved populations was INR 2,250,000/app, equivalent to USD 17, 000. (CEG, 2018). 8 free vision screenings were organized and supported by Rotary Club Lucknow Khaas and King George Medical College in Lucknow, India. The target cataract operations to be completed that year were 1000. In reality, the number of cataract operations completed was 991. In surplus to 991 cataract surgeries completed in the first year of Canadian Eyesight global, due to the donations of glasses, an additional 2000 patients were treated for refractive error (CEG, 2018). Since 1989, Canadian Eyesight Global has been able to do over 31,000 till 1997 and unlimited free cataract surgeries for those in need across rural India. In addition to this, Canadian Eyesight Global has treated various preventative ocular pathologies for over 400 000 patients in India (A. Jubbal, personal communication, March 5, 2021). The Canadian Eyesight Global (formerly Project Eyesight-India) has successfully sponsored and completed over 100,000 free cataract (*IOL*) surgeries and has treated more than 500,000 people for avoidable blindness in various parts rural India, since 1989.

Since 2004, vision screening camps have been held across Canada in British Columbia and Ontario. These vision screening camps have been held every four months for the past 15 years supported by eye surgeons, doctors, rotary clubs and dedicated volunteers (A. Jubbal, personal communication, March 5, 2021). These camps are typically held at temples and local community centers to create an opportunity for immigrant and marginalized communities who may not have the means for vision care to obtain free vision screenings to assess if they require

further vision care. As a means of accommodating those who are elderly or a part of immigrant communities, CEG's vision screenings are held at religious institutions to allow for a more effective, comfortable, and trustworthy process for those with linguistic or cultural barriers. These clinics help in the early detection and prevention of ocular conditions such as glaucoma, diabetic retinopathy, hypertensive retinopathy, cataracts, and refractive error. They also help in educating and creating conversations among these communities about the importance of eye care.

At these vision screenings, similar processes guide the camps' operations in Canada and rural India. Attendees are greeted at the reception desk, where their information is taken and prompted to the next station. The next station entails a quick physical examination, including height, weight, sugar levels/glucose levels, oxygen levels, and blood pressure. The third station entails optometric testing such as visual acuities, intraocular pressures via NCT, Goldmann tonometry, auto-refraction, slit-lamp examination, direct ophthalmoscopy, pupil testing, color vision testing, saccades, and extraocular muscles. The intraocular pressures and slit lamp examinations are led by the optometrists who have volunteered their time. Trained volunteers run all other tests. The fourth station entails a discussion with the volunteer optometrists, after which more information is given about their condition and how to manage it. If it is deemed necessary, there are ophthalmologists and medical doctors on-site for any further intervention or in the case of emergencies. The only differing factor in vision screenings in India versus those in Canada led by CEG is that in the former, medications such as glaucoma drops, antibiotics, steroid drops, rewetting drops, patches for free, and donated glasses can be provided without a referral (A. Jubbal, personal communication, March 5, 2021). Another distinguishing characteristic that differentiates vision screening in India and Canada deals with the referral for free cataract



surgery and transportation. Canadian Eyesight Global offers free cataract surgeries for candidates with cataracts with severe vision impairment with the best eye seeing BCVA 20/200 or worse (WHO, n.d.). CEG has associations with multiple hospital bases on the outskirts of rural cities in India. These relations allow CEG to refer cataract surgery candidates and provide them with the necessary transportation to avoid barriers to inaccessible vision care (A. Jubbal, personal communication, March 5, 2021). Due to the multilevel nature of these vision screenings, volunteers are a backbone to the operations of Canadian Eyesight Global. (Tables 1 and 2).

## **Vision in India**

In order to understand the vitality of Canadian Eyesight Global's vision screening and cataract surgeries in rural India, it is imperative to understand the depth of prevalence of vision conditions and impairment. The impact of vision impairment on communities in rural India is significant. For this reason, it is essential to have NGOs such as CEG assisting individuals in India's rural communities. Residents of these agrarian communities may find it difficult to lead independent lives, get an education, or even find work. The Rapid Assessment of Avoidable Blindness in India (RAAB) study revealed that glaucoma, refractive error, cataracts, and corneal opacities were among the most common causes of blindness low vision in India (Neena et al., 2008). As seen by the historical work by Canadian Eyesight Global, the diseases mentioned above were the ones most diagnosed at vision screenings.

Globally, cataracts are the most common cause of preventable blindness, after which corneal opacity secondary to trachoma follows (Senjam, 2020). In India, around 12 million people suffer from glaucoma, and 1.5 million are blind from glaucoma in India, making glaucoma the third most common cause of blindness (Senjam, 2020). In comparison, in India,

cataracts are responsible for 85% of avoidable blindness, with cataracts being the most common cause of blindness. In light of this, there must be vision care programs tailored towards cataracts, considering that 3 out of every 4 Indian residents over the age of 50 have a possibility of going blind due to a vision-obscuring cataract (Neena et al., 2008). In another study investigating blindness in India, Neena et al. (2008) conclude that 91.8% of blindness among the population above the age of 50 was due to avoidable blindness such as refractive error, aphakia, trachoma/corneal scars, and diabetic retinopathy. (Neena et al., 2008). A nationwide survey conducted in 1999-2001 on 74,000 people of India studies the magnitude and causes of blindness in India. This survey found that monocular or bilateral cataracts were responsible for 62.4% of bilateral blindness (Neena et al., 2008).

Blindness due to preventable diseases such as cataracts leads to numerous psychological factors such as worrying, feeling upset, depression, mobility, and dependency issues (Fletcher et al., 1999). In support of this, Murthy et al. (2005) find that one-fifth of this population was bilaterally blind due to uncorrected refractive errors. The consequence of this finding was the result of anterior segment pathologies, glaucoma, and posterior segment pathologies. (Murthy et al., 2005). India has a substantial elderly population with increased life expectancy. With this expansion of the elderly population, there is an inevitable increase in the prevalence of blindness in India than in any other country with similar geographical and demographic-related characteristics (Neena et al., 2008).

Adjacent to blindness among the adult population, preventable blindness among children also remains a significant issue. In a study concerning avoidable, treatable visual impairment among children, Dandona et al. (2002) find that the prescription of a pair of spectacle-corrected glasses decreases the visual impairment among children in rural India two-thirds. (Dandona et

al., 2002). Another reason for childhood blindness is congenital anomalies, retinopathy of prematurity, and cataracts, especially in northern-eastern India. Locals of these regions tend to have vitamin A deficiencies, infections, and trauma. These are contributing factors to a higher rate of preventable blindness (Gogate et al., 2006). Khanna (2007) states that an important factor to consider is that 30 to 40% of childhood blindness is easily preventable and treatable, especially cataracts and corneal disease perpetuated through vitamin A deficiencies and measles. In order to combat blindness due to vitamin A deficiency, Khanna (2007) states that daily supplementation of this can prevent blindness.

In India, many population-based studies have been conducted at municipal, state, and national levels (Khanna et al., 2007). These studies have proved that cataracts are a prevalent issue and core public health concerns. Throughout numerous population-based studies, it is concluded that most of these conditions could be prevented and treated with many cost-effective measures. This research attests that there is a need for vision care efforts to be carried out by NGOs, such as Canadian Eyesight Global, to alleviate the repercussions associated with this issue.

### **CEG's focus on Rural India**

India's disproportionate number of visually impaired individuals makes it the home to one-fifth of the world's total blind population (Murthy et al., 2005). Khanna (2007) thus states that any strategy or any charity attempt to eliminate blindness must consider the socioeconomic status of the people living with these conditions. That is why the focus of Canadian Eyesight Global has shifted towards rural parts of India. (Khanna et al., 2007).

There is a strong association between the prevalence of blindness and low socioeconomic status in developing countries such as India. It is the home to a bulk of the world's blind

population (Khanna et al., 2007). The distribution of human resources and infrastructure in India can be viewed simultaneously with the corresponding disease patterns. Most rural areas in India have limited accessibility and availability of human resources. Neena et al. (2008) states that rural respondents have a greater risk, 1.2 % to be exact, of being blind than urban respondents. The rural population is composed of individuals who do not actively work in comparison to the urban population. In terms of these conditions, those who were not engaged in any productive work had a 4.2 times higher risk of being blind than those engaged in active, productive work (Neena et al., 2008). In both of these scenarios, it holds that the rural populations have a higher prevalence of blindness.

Many studies have also shown that poverty is most often a leading factor in the prevalence of visual impairment (Khanna et al., 2007). Evident is a difference in the prevalence of blindness between those classified as poor and the rich of India, whereas the ratio of those who are poor and blind in India compared to those who are rich and blind in India is 11.7:1 (Khanna et al., 2007). Within these rural populations, gender disparities, insignificant testing, low literacy rates, poor socioeconomic status, and lack of access to services pose additional challenges in battling avoidable blindness in rural areas (Neena et al., 2008). Orbis (2020) has gone as far as to explore how economic factors affect eye health. They concluded that the majority of the visually impaired population live in low and middle rural populations with a lack of access to adequate nutrition, housing, sanitation, water, education, and basic health services making these less fortunately situated sectors of society more vulnerable to contracting avoidable blindness (Orbis, 2020). This reality lends credibility to Khanna's (2007) conclusion that poverty leads to a marginalized society that takes access to healthcare and health promotion efforts away from indigent members of society (Khanna et al., 2007).

A recent study by the All India Institute of Medical Sciences (Khanna et al., 2007) explores the number of vision care practitioners available to rural populations versus urban populations. This study finds that more than 50% of eye care facilities are located in the urban cities in private sectors. More than 70% of ophthalmologists in India are employed in these urban sectors. Subsequently, out of the thirty-four states of India, five states possess more than 50% of India's ophthalmologists. This incongruity poses a particular case that needs widespread intervention to achieve equitable distribution of vision care resources. (Khanna et al., 2007). Focusing on the increased life expectancy of India, most of the country's seniors live in rural villages (Smith et al., 2012). These parishes primarily encompass seniors who cannot access and receive adequate vision healthcare (Smith et al., 2012). Therefore, screenings conducted by NGOs such as Canadian Eyesight Global ensure seniors are getting the care they need. These screenings are essential as those aged 70 years and above have a five times higher risk of acquiring blindness than those aged 50 to 59 years old (Murthy et al., 2005). Due to these reasons, Canadian Eyesight Global has intensely focused its efforts on rural parts of India. With the inadequacy of vision health screening services availability and accessibility in rural India, NGOs such as Canadian Eyesight Global must continue their efforts within these specific populations.

### **Importance of Canadian Eyesight Global (CEG)**

The role of Canadian Eyesight Global within rural communities in India holds high importance in benefiting the community and the country through multiple factors. Many of the issues that a visually impaired individual faces on an individualistic and community level can be avoided and addressed through adequate intervention. Vision screening is one of the oldest and most used approaches in situations as such. A necessary starting point to explore the importance

Canadian Eyesight Global plays in preventing blindness on a global scale is to understand the cruciality of vision screenings on a large scale and their role in today's world of healthcare equity.

First and foremost, there are various economic benefits of vision screenings led by NGOs such as CEG. A study published in India by Orbis (2020) concluded that the economic burden of blindness in 2020 would total approximately USD 168 billion (Orbis, 2020). Using Canadian Eyesight Global as a platform to help individuals gain access to vision health care, preventable blindness can be avoided and treated free of charge. Access to vision care would benefit patients of the clinics and India's economic interest. Blindness is referred to as a disability in the workplace and a contributor to unemployment (McDonnall et al., 2019). Thus, it can lead to loss of income, lower education standards, lower living standards, poverty, and malnutrition (McDonnall et al., 2019). Early detection of preventable blindness can vastly decrease the economic burden of blindness in India as these factors play a role in premature death and the loss of the Indian economy (Khanna et al., 2007).

CEG plays a massive role in bridging the gap between accessible healthcare and rural communities. Orbis (2020) finds that urban communities have one ophthalmologist per 10,000 people. However, in rural communities, there is one ophthalmologist for every 250,000 individuals. (Orbis, 2020). These findings give credit to the statement that there is an urban-rural disparity in vision healthcare accessibility. The disparity is attributed to the decrease in vision care for these rural communities in India and population age demographic differences between rural villages and urban cities. Rural villages tend to comprise a more geriatric population than urban cities (Smith et al., 2012). Thus, it is evident that the operation of CEG is integral within rural villages in India to bring this type of trained vision care to the aging population and beyond.

An additional factor that makes CEG important within India is that its vision screenings are entirely mobile, offering services on-site within rural communities. Mobile services allow for an immediate level of response and care. If an emergent, acute case arises, it is treated immediately, allowing for a better prognosis of the situation at hand (Chase et al., 2020).

By Canadian Eyesight Global conducting vision screenings to the rural villages which need them the most, the barrier of transportation is completely removed, allowing for easier access to vision care, more trust, and better compliance for those facing hardship. In addition to this, CEG's work catalyzes gender equity. CEG's vision health clinics are brought to smaller villages where women typically neither leave their home nor their village. Therefore, these clinics induce and display a rise in women attendees. In contrast, the volunteer force contains many females, allowing female attendees to feel more comfortable and confident in attaining this form of vision care (Chase et al., 2020).

Another reason why CEG's presence in rural India is essential is that regular medical vision care can promote early detection and intervention of avoidable vision issues. The presence of CEG within rural communities allows for community engagement as CEG is locally based and well known within these rural villages and communities. Community heads and members can spread awareness of announcements, collaborate with other healthcare providers, and promote health education. This form of communication could very well eliminate the barrier rural communities face by offering multilevel collaborative healthcare. It could also drastically increase the lack of healthcare knowledge being perpetuated by the low literacy rates within these communities (Das et al., 2017). Vision health screenings led by CEG generate an absent yet vital dialogue amongst its citizens that give considerable attention to health awareness and the vitality of seeking care before permanent damage takes place.

## **Barriers of Canadian Eyesight Global (CEG)**

Though Canadian Eyesight Global strives to deliver optimal care to these communities, this charity faces many barriers when developing measures, tools, and resources to target preventative blindness. At the outset, a barrier that CEG faces is a misunderstanding of patient profiles. Many residents within these rural communities have low literacy rates and lack understanding of healthcare and vision care benefits. Due to this lack of comprehension, specific individuals may possess an irrational fear that treatment might negatively damage their eyes. An implicit fear in surgery may be detrimental to their vision (Fletcher et al., 1999). This barrier is quite challenging to overcome, but with adequate educational strategies within health promotion, this barrier can be subdued. As an internal measure, Canadian Eyesight Global must understand the existence of a barrier like this and its commonality around the world. Due to misunderstandings of vision care by these rural community members, there can be a lower uptake of vision services offered, leading to a rise in preventable blindness (Fletcher et al., 1999). There may also be a lack of education on health risks or vision loss or what healthy vision entails.

In addition to the awareness levels that CEG faces, geographical barriers also limit their work. Rural villages isolated and located hundreds of miles away from major urban cities are at a disadvantage as urban cities offer more integral vision services or emergent services (Prathiba et al., 2011). This limitation leads to difficulties associated with further intervention beyond basic vision necessities for some candidates. Some hospitals affiliated with CEG, which offer free cataract surgery for candidates in rural communities, are located only in major cities, compelling patients to access their transportation, a luxury many do not have (A. Jubbal, personal communication, March 5, 2021). For the rural villages located closer to major cities with



hospitals associated with CEG, transportation does not hinder individuals' access to services as CEG provides transportation for these candidates.

Lastly, lack of awareness poses a barrier as it discourages people from attending vision screenings. Within rural communities, the importance of vision screenings may not be emphasized enough (Das et al., 2017). The lack of infrastructure in rural communities also plays a role in that rural villages have limited electricity, building access, and unpredictable weather patterns. These factors limit the time to conduct the screenings and the type of technology used (Prathiba et al., 2011). As a result of the lack of electricity and infrastructure, many of the conducted tests are subjective and manual, increasing the length of the screening further, making them prone to inaccuracies. CEG vision screenings are temporary services. Therefore, these factors pose barriers for patient follow-ups, which obtain information from the patient about their uptake of services, referrals, or progression of vision or pathology. It is well known that a patient diagnosed with a disease such as diabetic retinopathy, glaucoma, or cataracts must attend follow-up appointments to track their progression. CEG does not address this through its works as it cannot provide constant care to its attendees. CEG provides "the gift of light" to populations immediately and on-site at vision screenings (A. Jubbal, personal communication, March 5, 2021). However, the matter is outside the control of CEG when a patient requires long-term preventative or rehabilitative care.

### **Achieving Optimal Coverage through CEG**

In order to operate in a distinguished manner, Canadian Eyesight Global must implement future strategies that allow for better uptake of services and optimal coverage. These strategies will ensure avoidable blindness is prevented within rural India and beyond. For CEG to offer the best long-term care, there must be developed infrastructure in impoverished rural areas to better

serve India's population in the future (Chase et al., 2020). With the appropriate resources and execution strategies, CEG can develop a foundation within these rural communities to promote a more long-term clinic. By organizing and executing vision screenings, CEG is showing this demographic how critical vision care is. Eye health screenings play a role in health education and allow the populations to understand the importance of vision care (Chase et al., 2020). It allows people to take more control of their vision, further allowing them to take preventable measures to avoid or correct curable blindness.

In hopes of achieving optimal coverage, CEG can make organizational changes. Implementing different teams when organizing vision screenings within rural communities can engage healthcare practitioners beyond vision, such as, but not limited to, nutritionists, medical doctors, diabetic specialists, and emergent physicians in the eye camps (A. Jubbal, personal communication, March 5, 2021). Incorporating these professionals will allow disparities between healthcare and subsequent healthcare providers and rural communities to decrease. It will also allow for CEG to carry out its mission beyond the realm of eye health care. Khanna (2007) states that ocular pathologies go beyond the eyes and have underlying causative systemic conditions. Therefore, the presence of doctors beyond eye care and vision health would act as a big help for affected populations and healthcare in rural India as a whole.

Beyond employing a diverse array of healthcare professionals, involving professionals in blindness prevention can expand and enhance the services accessible to these communities (Khanna et al., 2007). Creating a place for professionals such as policymakers, educators, rehabilitative personnel, and social workers within CEG's volunteer force will benefit the community and the fight against preventative blindness (Fletcher et al., 1999). It is also essential

to strengthen recruitment and training strategies to expand CEG's services across greater geographical proximity.

Canadian Eyesight Global should also focus its efforts on the presence and proven effectiveness of vision rehabilitative services. Many people that attend CEG's vision health screenings have reached the point of incurable blindness. The presence of rehabilitative services can positively impact a person's quality of life. These rehabilitative measures can assist a person in becoming more mobile, oriented, and independent, decreasing the burden of the patient on themselves, their family, and the country (Murthy et al., 2005). There is a need to develop more vision screenings that take on a holistic preventative approach, comprised of specialized pediatric eye centers which incorporate preventative and rehabilitative components of eye care (Khanna et al., 2007).

The next step within NGOs such as Canadian Eyesight Global is establishing a program within rural communities about health and vision education. Successful disease control and preventative measures can be cultivated through educating rural communities about appropriate hygiene, the importance of vision care and healthcare, and preventative pathologies (Khanna et al., 2007). The uptake of services or disagreement from rural populations can be battled through health education programs in schools, community centers, and religious institutions. Topics of discussion can further include awareness of the harmful effects of smoking, alcohol, drugs, UV exposure, vitamin A deficiencies, and the risks of vision loss through contact with sharp objects, firecrackers, or foreign body objects. Overall, it is essential for CEG to address the barriers to the uptake of services and have continuous efforts to ensure these services are user-friendly for the literacy rates of the individuals in question (Chase et al., 2020). For instance, high-risk

populations must be educated on the importance of follow-up appointments to urge them to get screened at nearby clinics when needed.

Certain patients and populations with a low rate of uptake of services can be provided with incentives to necessitate their attendance (Chase et al., 2020). Currently, CEG provides attendees with medication, transportation, glasses, and free check-ups; however, a complimentary meal would be an incentive for specific populations within these means. Considering the greater portion of the population does not understand the importance of these screenings, incentives act as a 'promotional event.'

Within rural communities, word of mouth is the primary source of information distribution and retrieval. A strategy that would benefit CEG in increasing the uptake of these services would be engaging media through multiple avenues, broadcasting vision screenings. Media is an effective manner of communicating, especially to these societies, about the importance of eye care and vision screenings. Furthermore, generating additional awareness to the public motivates these populations to attend these camps and not be afraid. Displaying posters around the villages and at town talks within the populations of the rural villages would be a proactive way to engage media and communicate CEGs message to this populace.

CEG can use a final strategy to better vision screening procedures to leverage technology to improve monitoring, diagnosing, quality assurance, data-taking, and data storage. As mentioned, the lack of appropriate infrastructure poses a barrier for CEG. Fortunately, modern technology does not require much space nor infrastructure (Chase et al., 2020). This technology can optimize vision screening by raising the attendance of patients, essentially diagnosing, treating, and preventing more pathologies in rural parts of India. All in all, implementing a few if not all the strategies recommended would permit Canadian Eyesight Global to aid individuals

more profusely in terms of increasing uptake of services, increasing the number of individuals assessed within the allocated screening time, rehabilitative and preventative approaches, and spreading health education leading to lesser cases of preventable blindness in rural India.

### **Canadian Eyesight Global into the futures**

With Canadian Eyesight Global helping these rural communities for over 30 years now, there is no doubt that this charity will continue to do so in the future. With the world constantly changing, there are a few notions CEG should consider as a part of their plans to help eliminate preventable blindness in rural communities in India. CEG must first consider the accessibility of the location of vision screenings at vision health screening camps. These locations must be accessible to multiple rural villages. The proximity of cataract surgery hospitals must also be considered. Approximately five partnering hospitals within India are responsible for cataract surgery candidates diagnosed at CEG vision screenings (A. Jubbal, personal communication, March 5, 2021). Unfortunately, some of these hospitals fall very far from certain rural villages, leaving these candidates with preventable blindness with no other solution. CEG should consider partnering with more hospitals and developing their infrastructure to support these surgeries to make their work more efficacious for those accessing vision services.

Throughout 32 years of countless hours of selfless work by CEG volunteers facilitating vision screenings, many have been helped and been rid of the burden of blindness. Canadian Eyesight Global should consider developing beyond the borders of India and Canada to assist other global rural populations. The workforce and experience Canadian Eyesight Global upholds is rare and can be beneficial in developing numerous strategies to aid in preventable blindness and vision screenings for other global rural communities. Through thorough research, CEG should develop a plan to understand where these services are most necessary and apply them

accordingly. A final consideration is the integration of other nearby health services with these vision screenings. CEG is presently focused on vision care (A. Jubbal, personal communication, March 5, 2021). Nevertheless, having health services beyond vision, focusing more on systemic and pathological issues, would enhance the screening process, benefiting marginalized individuals worldwide.

The noble task done by Canadian Eyesight Global has been recognized by the Government of Canada and Rotary International and NGOs in Canada and India. The Canadian Eyesight Global celebrated its 30th anniversary. The Rotary International President Mark Daniel Maloney was the Chief Guest, inaugurated the CEG celebration on August 18th, 2019, Surrey, British Columbia, Canada. Canadian Eyesight global has proposed to establish a Charitable Eye Hospital and Preventable Blindness Centre in Amritsar, Punjab, to help the needy people for restoration of eyesight and avoidable blindness in Punjab and other parts of India.

## **Conclusion**

Cataracts and uncorrected refractive error, and glaucoma are the top three types of preventable blindness in India (SOURCE). Understanding that these conditions can be prevented or stabilized allows us to decipher an incredibly evident association between the prevalence of blindness and poor economic status in rural India. There is an urgency for charities such as Canadian Eyesight Global to conquer the fight to eliminate preventable causes of blindness. As previously mentioned, CEGs focus on systematically removing barriers that pose to be detrimental for those impoverished can alleviate inequities in India in a multitude of ways. While NGOs such as CEG operate on a humanitarian basis and aid in blindness prevention temporarily, the government must help generate vision health screening service delivery with an enduring

impact (Khanna et al., 2007). The eventual fusion of preventive and rehabilitative long-term approaches will lead to a steady decline in blindness in rural parts of India. Therefore, mass effort should be put towards executing these progressions to ensure a brighter future for a developing country where the visually impaired are cared for.

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**Table 1: Equipment List at Vision Screenings in Rural India**

Equipment List				
Slit Lamp	Applanation Tonometer	Trial Set	Retinoscope	Direct Ophthalmoscope
Occluder	Near Vision Chart	Color Vision Book	Snellen Charts (In Native Languages and English)	Trial Frames
Blood Pressure	Low Vision Kit	Stethoscope	Glucometer	Autoclave
Foreign Body Removal Kit	Frames with marked lenses	Pediatric Vision Chart	Mirrors	Autorefractor
Lensometer	Low Vision Charts			

*Note:* A list of equipment used by Optometrists and Ophthalmologists throughout vision screenings led by Canadian Eyesight Global throughout rural India (A. Jubbal, personal communication, March 5, 2021)

**Table 2: Conditions at Canadian Eyesight Global (ECG) Screenings**

<b>Condition</b>	<b>Description</b>
Refractive Errors	Vision < 20/20 OS or OD or OU
Cataracts	Media opacity impairing the vision (Wajda, 2016)
Glaucoma	In the absence of any other diagnosis, with the presence of Pallor and/or Cupping, large or asymmetrical C/D ratio, low Corneal Hysteresis, low Corneal thickness, thin retinal Nerve fiber layer, increased intraocular pressure (Wajda, 2016)
Diabetic Retinopathy (DR)	Sight threatening diabetic retinopathy which includes one of the following: Clinically significant macular edema, Neovascularization of the disc or else well, any vitreous hemorrhages, neovascular glaucoma (Wajda, 2016)
Age-Related Macular Degeneration (ARMD)	Sight threatening vision due to drusen located at the macula and/or macular scar and/or choroidal neovascular membrane and/or geographic atrophy and/or ARMD with Neovascularization (Wet ARMD) (Wajda, 2016)
Corneal Issues/Trachoma	Infectious, contagious chlamydial disease which leads to the breakdown of the cornea and ultimately blindness (Wajda, 2016)
Conjunctivitis	Inflammation and infection of the conjunctiva by bacterial, viral, allergic, or idiopathic toxins (Wajda, 2016)

*Note:* An overview of most common conditions diagnosed at Canadian Eyesight Global vision screenings.

The World Health Organization defines blindness as a vision that is less than 20/400 in the best-corrected eye. Any of the conditions encountered at vision screenings by CEG have had blindness due to the above conditions, hence why it is essential to understand the most commonly diagnosed conditions at these screenings (WHO, n.d.)