



India Vision Institute
LEADING THE CHANGE



RE2030: Addressing Uncorrected Refractive Error in India

September 2024

A medium-term (2024–30) status report addressing Uncorrected Refractive Error (URE) in India

Background:

The Magnitude of the Challenge

Refractive error is the leading cause of vision impairment in India. The prevalence of refractive error is 59% among adults and 7.5% among children¹. However, according to the World Health Organization (WHO), only 36% who need access to spectacles in India currently have access. This means more than 200 million people who are in need of a pair of spectacles, currently do not have access².



Economic and Social Ramifications

In India, the economic impact of URE is huge, with an estimated annual productivity loss amounting to over INR one lakh crore³. There is a strong correlation between vision correction and productivity for adults. Wearing glasses can enhance productivity by 32%⁴ and increase worker income by 33%⁵. Proper vision correction also significantly reduces accident risks and improves overall quality of life⁶. In school children, academic performance of the child improves with vision correction^{7,8}.

Historical Context and Legislative Landscape

Optometry in India was introduced by K.D. Dutta, a British trained Optologist at the Indian College of Optics in Bengal in the early 1930s. Some of the early colleges include AIIMS and Sitapur Eye Hospital. In 1985, the first four-year undergraduate program was established by Sankara Nethralaya in Chennai. Currently, there are approximately 370 optometry colleges in India, producing around 7,500 graduates annually⁹.

1. India Vision Institute's Data: Vision Screening of over 800,000 adults and children in 23 states with cut off - 0.75 D

2. WHO Report: SPECS2030 Vision and Mission <https://www.who.int/initiatives/specs-2030>

3. <https://www.iapb.org/learn/vision-atlas/economics/eye-health-and-economic-development>

4. Reddy, P. A., Congdon, N., MacKenzie, G., Gogate, P., Wen, Q., Jan, C., & Ali, R. (2018). Effect of providing near glasses on productivity among rural Indian tea workers with presbyopia (PROSPER): a randomised trial. *The Lancet Global Health*, 6(9), e1019–e1027

5. Sehrin, F., Jin, L., Naher, K., Das, N. C., Chan, V. F., Li, D. F., & Congdon, N. (2024). The effect on income of providing near vision correction to workers in Bangladesh: The THRIVE (Tradespeople and Hand-workers Rural Initiative for a Vision-enhanced Economy) randomized controlled trial. *Plos one*, 19(4), e0296115

6. The Socio Economic Impact of Poor Vision: https://vii-production.s3.amazonaws.com/uploads/research_article/pdf/51356f5ddd57fa3f6b000001/VisionImpactInstitute-WhitePaper-Nov12.pdf

7. Latif, M. Z., Hussain, I., Afzal, S., Naveed, M. A., Nizami, R., Shakil, M., Akhtar, A. M., Hussain, S., & Gilani, S. A. (2022). Impact of Refractive Errors on the Academic Performance of High School Children of Lahore. *Frontiers in public health*, 10, 869294. <https://doi.org/10.3389/fpubh.2022.869294>

8. Glewwe, P., Park, A., & Zhao, M. (2006). The impact of eyeglasses on the academic performance of primary school students: Evidence from a randomized trial in rural China

9. Bharadwaj, S. R., Narayanan, A., Chande, P., Ramani, K. K., Satgunam, P., & Radhakrishnan, A. (2024). A century's worth of optometry in India: Growth, present status, and the future. *Optometry and Vision Science*, 101(3), 131–133



With the accelerated growth in the number of optometry colleges, the overall quality of both teaching and graduates has been compromised¹⁰. There is also a challenge in retaining graduates to continue in Optometry. India has around 49,000 primary eye care professionals¹¹ and the current need may be as high as 150,000 trained primary eye care professionals. This would include Optometrists, Ophthalmic Assistants and Vision Technicians.

The National Commission for Allied and Healthcare Professions Act that was passed by the Indian Parliament in March 2021 would eventually streamline the profession¹². The 2021 amendment to the Medical Devices Bill, which removed spectacles, frames, and lenses from the medical devices category, offers a promising avenue for reducing production costs and enhancing affordability¹³.

The Market¹⁴

The optical retail industry in India is growing in all areas, including optical stores, brand showrooms, and online retailers. The Indian eyewear market is in the range of 3B\$ to 3.5B\$ at the outer limit. The import of lenses is estimated to be at 160M pcs in 2023. Metros and Mini Metros have a higher ratio of optical outlets relative to population compared to tier two and lower cities and often non-existent in villages.



WHO SPECS 2030

The World Health Organisation SPECS 2030 initiative was adopted in Geneva in 2021 by all member countries, including India¹⁵. This strategy aims for a 40 percentage point increase in effective refractive error coverage globally, including in India from 36% to 76% by 2030 through five strategic pillars: Improve access to refractive Services, Build capacity of Personnel to provide refractive services, Improve population Education, Reduce the Cost of refractive services, and Strengthen Surveillance and research¹⁶.

10. Bharadwaj, S. R., OATN OPTINT 2024 conference (Keynote)

11. De Souza, N., Cui, Y., Looi, S., Paudel, P., Shinde, L., Kumar, K., & Holden, B. (2012). The role of optometrists in India: An integral part of an eye health team. *Indian journal of ophthalmology*, 60(5), 401-405

12. <https://thc.nic.in/Central%20Governmental%20Acts/National%20Commission%20for%20Allied%20and%20Health-care%20Professions%20Act,2021.pdf>

13. <https://main.mohfw.gov.in/?q=newshighlights-97>

14. Private Conversation with Mr. Ramchandran P., consultant eye care industry

15. WHO Report: SPECS 2030 Vision and Mission <https://www.who.int/initiatives/specs-2030>

16. WHO Report of the 2030 Targets on eREC: <https://www.who.int/publications/i/item/9789240050068>

METHODOLOGY



Background articles on URE and primary eye care in India over the last 20 years were compiled and a draft report was prepared. This was circulated to 30 eye care leaders, following which, each of them shared their individual views on how we can increase refractive error coverage in India. The eye care leaders (acknowledged at the end of this report) were from the ophthalmic industry, the retail industry, NGOs, major hospitals, regulatory bodies, public health organisations,

educators and Industry groups. Each of the respondents, in an open interview format based on Chatham House rules, shared their perspective. Post the interviews a draft report was circulated for feedback. Following this a final report was prepared.

FINDINGS & DISCUSSIONS

1. URE remains a significant public health issue in India. Many individuals reported that in their vision screening camps, a large percentage of those who needed glasses were first-time wearers, especially among urban poor and rural Indians. This includes marginalized communities such as elderly and differently abled individuals.
2. Most interviewees noted that awareness and access were the two major barriers in increasing refractive error coverage.
3. The need for greater awareness to get their eyes checked regularly would be very important. Large-scale awareness campaigns are essential to educate the public on the implications of URE and the importance of vision correction. This includes awareness of Myopia as an emerging and concerning issue among school children. With life expectancy increasing and the population in India aging, dealing with Presbyopia is also becoming very important.
4. Addressing cultural stigmas associated with wearing spectacles through targeted education programs can help increase the adoption of corrective measures.
5. Another barrier that came up strongly is the limited access to primary eye care services, particularly in rural and underserved areas. One of the main impediments was the shortage of trained eye care professionals (Optometrists). The shortage of qualified eye care professionals, especially in Tier 3 and Tier 4 cities and villages, is a significant medium-term challenge. The optical industry has a struggle recruiting and retaining Optometrists.
6. There were concerns on the quality of Optometrists, both technically and in soft skills. There has been a large increase in the number of colleges that provide degrees or diplomas in Optometry, but lack of trained teachers, equipment and infrastructure makes it hard especially for the industry to get qualified optometrists.

7. Developing agreed quality standards and implementing them rigorously to ensure vision screenings are accurate was noted.
8. Alternate mechanisms to deal with presbyopia as done in other countries needs to be investigated.
9. There are concerns on the quality of spectacles provided, especially in the lower to middle cost segment.
10. Compliance among people who receive spectacles through various outreach programs needs to be strengthened. A better understanding of compliance among spectacle wearers through monitoring and evaluation is crucial, and solutions for barriers must be developed.
11. Leveraging technological innovations, such as telemedicine and artificial intelligence-assisted screening tools, can significantly improve access to eye care services, especially in remote areas. These technologies can streamline the screening and diagnosis process, making it easier for more people to receive timely and accurate eye care.
12. There is a huge gap between the large need for refractive error services and services available through retail outlets, hospitals and Primary Health Centres (PHCs).
13. Domestic production of spectacle products will assist in reducing costs and improving affordability. Promoting local manufacturing of cost-effective spectacles can make spectacle lenses more accessible to the general population.
14. The optical retail industry in India is developing, with significant growth projections. This growth presents an opportunity to increase the availability and affordability of spectacles. Collaborating with optical companies to provide affordable eyeglasses can play an important role in increasing REC.
15. Developing collaborations among stakeholders – including government bodies, non-governmental organizations, eye care providers, optical companies, and educational institutions – can facilitate resource sharing and knowledge exchange. These partnerships can lead to comprehensive strategies to address URE, from increasing public awareness to improving service delivery.
16. Engaging leaders from various sectors, including ophthalmology, optometry, ophthalmic industry, and public health, can help in formulating and implementing effective policies and interventions.
17. The role of the government in providing greater access to primary eye care is important to be leveraged especially in rural India. This can include more use of government infrastructure and services for primary eye care, leveraging government schemes, both nationally such as the Ayushman Bharat Yojana and various state level government schemes such as Kannoli Kappom Thittam (Tamil Nadu), Kanti Velugu Scheme (Telangana), Asha Kirana Scheme (Karnataka), the Senior Citizens Health Insurance Scheme and enabling access to reading glasses through Accredited Social Health Activist (ASHA) and Community Health Workers (CHWs).
18. Expanding existing health schemes to include coverage for refractive error correction and advocating for state-wise mandatory schemes can be a major step forward. The inclusion of provisions for a second pair of spectacles and follow-up treatments in schemes such as Ayushman Bharat Yojana and others can significantly increase REC.
19. Other factors impacting REC in India include financial constraints that limit access to spectacles, especially for those from lower socioeconomic backgrounds. Addressing these financial barriers through government subsidies and financial assistance programs will assist.

20. There is a shortage of good published data within the refractive error space to enable better decision making and policy development.
21. WHO's SPECS 2030 initiative was adopted at the UN General Assembly in 2021 and all governments, including India, are a signatory to its targets for URE. This will have a major impact in addressing URE in India.

RECOMMENDATIONS

1. Well researched baseline data on the current status of the primary eye care profession would assist in better future planning.
2. Implement large-scale public awareness campaigns on the importance of regular eye check-ups and correcting refractive errors.
3. Address cultural stigma associated with wearing spectacles through targeted education programs.
4. Provide guidelines to optometry colleges on infrastructure, faculty requirements, and curriculum development to improve the quality of graduating optometrists. Establish standardized regulations and guidelines for optometry education and practice.
5. Develop more quality university-level programs for Optometry, possibly scaling current programs as well as developing new ones. There will be a need to get another 100,000 Optometrists, Ophthalmic Assistants and Vision Technicians over the next decade.
6. Develop mechanisms that can assist current optometrists to continue staying in the profession.
7. Implement mandatory registration for optometrists to ensure quality of care.
8. Implement nationally agreed guidelines for vision screening.
9. Develop alternate mechanisms to deal with Presbyopia as done in other countries.
10. Greater awareness on Myopia as a major public health problem in India.
11. Establish vision centres and mobile eye clinics in underserved areas.
12. Work towards improving compliance among spectacle wearers.
13. Leverage telemedicine and AI-assisted screening tools to improve access in remote areas.
14. Develop quality standards for spectacles.
15. Collaborate with optical companies to provide affordable corrective lenses.
16. Develop mechanisms to promote local manufacturing of spectacles to reduce production costs, decrease dependability on imports and position India as an alternate global destination for spectacle manufacture.
17. Improve eye care infrastructure and access to services among government institutions, including primary health centres across the country.

18. Develop government subsidies and financial assistance programs to make spectacles more affordable.
19. Expand existing government health schemes to include coverage for refractive error correction and second pair of spectacles.
20. Advocate for government support to develop favourable policies and allocate resources for eye care.
21. Foster collaborations among stakeholders for resource sharing and knowledge exchange, as well as implementation of the WHO SPECS 2030 strategy.

ABBREVIATIONS

URE – Uncorrected Refractive Error

REC – Refractive Error Coverage

ASHA – Accredited Social Health Activist

WHO – World Health Organisation

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