# From Sandbags to Systems: Six Decades of Eye Care in Nepal and the Road Ahead

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When I joined health service of Nepal as a young medical officer in the mid-1960s, eye care in the country consisted of a single eye department in Kathmandu, staffed by only one ophthalmologist who shuttled between Ophthalmology and Ear, Nose, and Throat (ENT) services. Cataract surgeries were few, intraocular lenses did not exist, post-operative patients lay immobilised with **sandbags** flanking their necks, hospital stays lasted a week, and thick aphakic spectacles were worn only after six weeks.

Six decades later, as I stand at the twilight of my professional journey, Nepal's eye care landscape tells a remarkably different story – one shaped by vision, partnerships, perseverance, and people.

## A Journey of Transformation

Today, Nepal has close to 100 eye hospitals and several hundred eye care centres distributed across all districts. Trachoma and vitamin A deficiency have been eliminated as public health problems (WHO, 2018). Intraocular lenses are manufactured within the country and exported to more than 75 nations. Nepal is self-reliant in training eye health human resources and now contributes by providing training for other countries. Ground-breaking research from Nepal has influenced national and global eye health practice, while the prevalence of blindness has declined from 0.84% in the 1980s to 0.35% in 2010 and further to 0.28% in 2021 (Brilliant et al., 1985; Sapkota and Limburg, 2012; Government of Nepal, 2024).

This transformation did not occur overnight. The decades of the 1970s and 1980s were catalytic. Nepal's lone eye department in the 1960s gained companions in Biratnagar and Birgunj in 1972. The country's first eye hospital was established the same year, coinciding with the birth of the

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Institute of Medicine under Tribhuvan University – an apparent coincidence that proved historically consequential. During this period, landmark population-based studies, including the Nepal Xerophthalmia Survey, laid the foundation for what would become one of the most successful public-health interventions globally: the national vitamin A supplementation program (Fiedler, 2000).

Incidentally, it was in 1975 that a previously unknown and devastating eye disease was first observed. Initially a mystery, it was later recognised as a seasonal condition occurring in autumn of odd-numbered years and associated with moth exposure and subsequently named Seasonal Hyperacute Pan-Uveitis (SHAPU). Although progress has been made in understanding this uniquely Nepali condition, much remains unknown, and SHAPU continues to call for greater national and global scientific collaboration (Malla, 1978; Upadhyaya et al., 1984; Goh et al., 2025).

**Global Alignment and National Ownership**

Nepal's progress was further strengthened by global developments. The establishment of the International Agency for the Prevention of Blindness in 1975 and the World Health Organisation (WHO) Prevention of Blindness Program in 1978 provided technical guidance and international solidarity. Nepal's alignment with these initiatives – while retaining strong national ownership – proved decisive.

The SAFE strategy combines three elements of primary, secondary, and tertiary prevention but in reverse order. It aims to stop the spread of blinding trachoma through **S**urgery (tertiary), **A**ntibiotics (secondary), **F**acial cleanliness, and **E**nvironmental improvements (primary). The application of the **SAFE strategy** led to the elimination of trachoma as a public health problem, officially validated by the WHO in 2018, making Nepal the first country in the WHO South-East Asia Region to achieve this milestone (WHO, 2018). Similarly, the national vitamin A program, launched in 1993 following survey recommendations, has dramatically reduced childhood blindness, mortality, and morbidity and continues to stand as a global exemplar of evidence-driven public health (Fiedler, 2000).

**Shifting Epidemiology, Emerging Challenges**

At the time of the Nepal Blindness Survey, cataract accounted for nearly 60% of all blindness (Brilliant et al., 1985). The establishment of the Fred Hollows Intraocular Lens Laboratory in 1994, together with parallel efforts in the region, transformed cataract surgery by making intraocular lenses affordable and universally accessible (Ruit et al., 1990). Today, cataract surgery without an intraocular lens in Nepal is virtually unthinkable.

Yet success has brought new challenges. The major causes of visual impairment are shifting from anterior-segment conditions to posterior-segment diseases, many of which are closely linked to non-communicable diseases (NCDs). These conditions require highly skilled personnel, sophisticated technology, and sustained financing, precisely at a time when health systems are being asked to do more with less.

Recent national assessments using the WHO Eye Care Situation Analysis Tool reveal persistent gaps. Integration of eye care into primary health services remains extremely limited, particularly

in rural municipalities. Workforce shortages, uneven geographic distribution, and heavy reliance on non-governmental and private providers have resulted in inequitable access to services (Sapkota, 2025).

Even when need is identified – such as through school screening programs – uptake of services remains suboptimal, often because facilities are distant or inaccessible. Among older adults, although national blindness prevalence has declined, a substantial burden of avoidable visual impairment persists due to treatable conditions such as cataract and uncorrected refractive error (Government of Nepal, 2024).

**Beyond Treatment: Determinants, Rehabilitation, and Systems**

This epidemiological transition demands a conceptual shift – from treating disease to addressing determinants. Many blinding conditions today are downstream consequences of NCDs, which themselves arise from upstream social determinants of health. Proactive screening for NCD risk factors and integrated models of care are therefore essential.

Pilot initiatives integrating NCD screening and documentation of social determinants into routine eye care delivery offer promising directions. Such approaches recognise that the eye cannot be separated from the body, nor from the social realities in which patients live.

Rehabilitation remains an under-addressed dimension of eye care. While services for people with low vision have expanded, those with no vision are often left behind. Encouragingly, inclusive models have emerged in Nepal, supporting children with no vision into mainstream education and enabling older adults to acquire vocational and digital skills. These initiatives deserve systematic expansion.

**Human Resources, Climate, and Governance**

Nepal's achievement in developing a self-reliant eye health workforce is commendable. However, urban-rural imbalances, skills gaps, and retention challenges persist. Migration and movement to the private sector continue to strain public services, while shortages of rehabilitation personnel weaken the continuum of care (Sapkota, 2025).

Climate change presents an emerging existential threat. Nepal is among the world's most climate-vulnerable countries. Extreme weather events, damage to health infrastructure, disruption of supply chains, and food insecurity risk reversing hard-won gains by enabling the re-emergence of nutritional eye diseases and trachoma. Surveillance and preparedness must therefore be strengthened.

Governance remains a cross-cutting concern. Data gaps, underutilised information systems, and fragile health-financing mechanisms, particularly within the national insurance program, limit evidence-based decision-making. Aligning national health information systems with global eye health indicators is no longer optional – it is foundational to sustainable progress.

**Challenge, Response, and Renewal**

Arnold Toynbee famously summarised the history of civilisation in three words: *challenge–response–challenge*. Nepal's eye care journey exemplifies this rhythm. We have responded to

formidable challenges in the past, and we will be called upon to respond again.

The mantle now passes to the younger generation who are better trained, more globally connected, and morally entrusted, to carry this legacy forward. This reflection is not intended as a comprehensive history, but as a personal witness—from a time when Nepal had a single ophthalmologist to an era in which the country contributes meaningfully to global eye health. I have been, at different times, a follower, a witness, and a doer. I remain, always, a believer. I am confident that the present generation of eye care professionals with their fortitude and foresight will make this happen The next decade in Nepal will not be defined by how many cataracts we remove ( although it is important to do so), but by how well we manage chronic disease by addressing upstream factors (social determinants of health), integrate care, and protect the most vulnerable in a changing climate and dwindling resources which requires working out of our traditional silos.

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