

# Note: Eye Banking at LVPEI

A few days ago, I was examining a patient from Maharashtra who had developed opaque corneas in both her eyes. The cornea refracts light into the eye, and so, it must be a clear and transparent portal. Infection or scarring can make them go opaque, impairing a person's vision. I advised her a corneal transplantation to tackle this opacity. I explained to her that the surgery involves excising the opaque cornea and replacing it with a healthy 'donor' cornea; that is, a cornea retrieved from generous individuals after they die. You may have guessed her next question: 'Doctor, how long will I have to wait for a donor cornea?'

I smiled. Her question took me back to the 1990s when we would maintain a waitlist of cornea recipients. The would-be recipients and their families would wait in the town for months on end, enquiring each day about the availability of a cornea. As soon as we received this precious gift we would launch into surgeries. I still have memories of those days when we would perform graft surgeries late into the night. Back then, eye donation was a new concept, there were many myths and superstitions about it and hardly anyone donated their eyes. Further, the corneal tissues had to be used immediately, within 24 hours after retrieval, as there was no preservative medium to store the corneas.

Those days are in the past. Today, there is no waitlist for any cornea specialist in the three states where we are present. With an adequate supply of tissues, corneal transplant surgeries are performed as a routine procedure. In fact, the eye banking network of L V Prasad Eye Institute meets the corneal supply needs of many partners across India. So, I could assuage my Maharashtrian patient's doubts and schedule her surgery at a date that suited her.

LVPEI's eye bank network is an extraordinary achievement. Today, they are an Institute of Excellence, and their work has transformed India's struggle with corneal blindness. There are lessons here for many other countries and cultures that are still stuck in the waitlist rut that we came out of nearly 18 years ago.

## The beginning

When we started patient care services at the institute in the mid-80s, one of the challenges we faced was the availability of corneal tissue. While we had a highly skilled and globally acclaimed team of corneal surgeons, they were hampered by a severe shortage of transplantable corneas. For the first few years, we had to import corneas, sometimes from the USA, and mostly from the pioneering Gautam Mazumdar-run eye bank in Ahmedabad. In 1989, after struggling for two years, we decided to set up an eye bank.

The decision was not an easy one as most people were sceptical. However, the family of Gunnam Ramayamma had full faith in us and came forward to support it. Frederick N Griffith of the International Federation of Eye and Tissue Banking (IFETB), Baltimore, USA agreed to provide us with technical support and help with human resource development. Dr Verinder Nirankari, a successful corneal surgeon from Maryland, USA, was the catalyst who made this partnership possible.

Starting with harvesting 20 corneas in 1989, the Ramayamma International Eye Bank (RIEB) has come a long way. Today, it is the largest eye bank in Asia and one of the largest in the world. LVPEI has become a network of 4 eye banks and several eye collection centres, collecting more than 10,000 corneas each year and supplying close to 7,500 corneas for surgeries to a vast network of surgeons across the country (the remaining may be unsuitable for grafts, but can help with research). The eye bank network also keeps pace with advancements in surgical techniques. They have started preparing and supplying partial thickness tissues, for example, for an advanced and recently introduced technique of cornea transplantation.

### Breaking the waitlist

So, how did we break out of the waitlist rut? There are three parts to the breaking: procuring adequate corneas, storing them for as long as possible, and enabling an ecosystem where eye donations can happen smoothly.

In 1990, we started our hospital-based cornea retrieval program (HCRP) in partnership with the Nizam Institute of Medical Science (NIMS), one of the major healthcare facilities in Hyderabad. Prof Kakarla Subba Rao, then director of NIMS, came forward to support this initiative. Hospitals like NIMS handle a lot of mortality and so, they are potential sites for motivating eye donations. We would post trained grief counsellors at NIMS who would handle the delicate and difficult job of encouraging an eye donation. The counsellor approaches the kin of the deceased and initiates a conversation on eye donation. The kin may be grieving their loss, and eye donation may be the last thing on their minds. Some may worry about defiling the dead, others may even be angry. The counsellor works with them through all this, always mindful of their grief and pain. All this may sound impossible to execute, and it is very hard, but our counsellors have been miracle workers. By 2023, the Ramayamma International Eye Bank has collected over 100,000 corneas. Today, HCRP runs in several large hospitals in the three states and accounts for nearly two-thirds of corneal tissues procured in our network. Other eye banks in the country run successful HCRPs as well.

In 1991, we set up a laboratory for manufacturing cornea storage medium in collaboration with IFETB, USA. The medium allowed us to store excised corneal tissues for 96 hours – a gain of 3 days compared to a few hours. Last year, we produced and distributed nearly 25,000 vials of this cornea storage medium to various eye banks in and outside our country. Do note, the procurement and preservation happen at LVPEI to the highest standards. All our eye banks are accredited by international agencies and the Eye Bank Association of India highlighting our commitment to quality.

Finally, we advocate for eye banking. This is important because we must make eye donations a natural and voluntary choice after death. To achieve that, the public must be convinced that we do everything to the highest clinical and ethical standards. So, we led efforts to establish the Eye Bank Association of India as a resource centre for other eye banks and as a supporter of India's eye donation movement. We played a leadership role in drafting medical standards for eye banking in India. We also developed and published a model of eye banking for India that would allow us to meet the national demand in an efficient and cost-effective manner.

Over the years, LVPEI has helped other eye banks with training, developing, and implementing standard operating procedures and preparing for accreditation. More recently, we helped in setting up eye banks in the states of Assam, Uttarakhand, and Uttar Pradesh.

All of this was possible because of visionary leadership, a committed team, and support from many individuals and organisations. The late Dr Paul Dubord of Eyesight International (ESI) was a big supporter. Sightlife, a major eye bank on the West coast of the USA, the Rotary club of Hyderabad, and Rotary International are our major supporters.

Corneal opacities are the second major cause of blindness in India among those who are 50 years and older—and the primary cause in those younger. Our eye bank network model is how we will make a big dent to that burden.

-Prashant Garg