

## Note: Research at LVPEI

Some exciting news this month: LVPEI is ranked eighth in the SCImago Institutions Rankings 2023 in the Ophthalmology (Health) category. LVPEI is the only Indian eye health institution among the top ten global eye research institutions. We are also the youngest, standalone eye institute in the world to make it to the top 10, sharing the honour with organizations and universities whose history dates back over 200 years. We celebrate this ranking with our patients, donors, partners, and supporters from across the world who have been instrumental in this success. The SCImago ranking agency evaluates institutions based on their research output, including publications, innovation (patents and patent citations), and the societal impact of research output (the social media conversations around published research).

The impact and quality of our research are reflected in the Stanford rankings too. Stanford University has published a public database ranking the world's top 2% scientists from a list of nearly 160,000 scientists from around the world. LVPEI's researchers feature in this list's ophthalmology category. In fact, a majority of the researchers from India are either at LVPEI or have spent their formative years here.

I must admit that I was not surprised by these developments; research and innovation have been at the core of our organization since the time the institute was founded. Nag Rao, our founding Chair, started building partnerships with the Centre for Cellular and Molecular Biology (CCMB), the Nizam's Institute of Medical Sciences (NIMS), and other research organizations even before the construction of the eye centre was complete. Prof. D. Balasubramanian (Balu, as we fondly call him), the Director of CCMB then, joined Nag in his efforts. The duo created the Hyderabad Eye Research Group, which later became the Indian Eye Research Group and is now the ARVO India Chapter. The partnership grew so much that Balu decided to join LVPEI as the founding director of our research centre after he retired from CCMB.

We also value our partnership with the late Prof. Brien Holden of the University of New South Wales, Sydney, and the Champalimaud Foundation of Portugal. Those early partnerships have multiplied into collaborations with several national and international organizations. Dr. Shivaji Sisinthy, a celebrated microbiologist, took over the research directorship from Balu and his term ended in April 2020. Today, Sayan Basu has taken on the mantle of heading LVPEI's research and is helping to set the agenda for the future.

### The LVPEI Research Ecosystem

Research at LVPEI is steeped in our values: patient-first, excellence, equity, integrity, and togetherness. It is driven by an aspiration to improve the quality of sight of our patients. We have a unique ecosystem where research is central to every profession. Each clinician dedicates time for research work and their career is closely linked with their research productivity and impact. All basic science labs are in the same building as the clinical facility, and there are multiple opportunities for exchange between basic scientists and clinicians. Our optometrists and clinicians who examine patients, the technicians who

capture images that adorn the covers of medical journals, the scientists striving towards the next breakthrough discovery, the engineers who innovate simpler solutions, and the statisticians who unravel the patterns in millions of rows of data—everyone contributes to the research process.

We support the careers of young clinicians and help them develop new skill sets by facilitating exposure to international and world-class research. A large number of trainees who join our education program carry the LVPEI research culture with them to national and international centres. All these investments are for the future, to create the next generation of clinician-scientists this world will need. They will ideate, transform those ideas into discoveries, and advance those discoveries into novel therapeutics and devices that will ultimately help us alleviate needless visual impairment in the world.

### Scientific Impact

Over the decades, the institute has built a strong group of scientists and clinician-scientists who work towards understanding key aspects of ocular diseases and eye health both on an individual and community level.

Our homegrown epidemiological research led to the LVPEI Eye Health Pyramid, a model recognised by the World Health Organization (WHO), the International Agency for the Prevention of Blindness (IAPB), as well as many nations as an efficient means for ensuring universal eye health for underserved and vulnerable populations. Stem cell therapy, especially the Simple Limbal Epithelial Transplantation (SLET), was first described, performed, and developed at LVPEI and is now practiced worldwide, especially in developing countries. These therapies are transforming the lives of many with blinding ocular surface diseases.

LVPEI scientists discovered Pythium—a pathogen that resembles fungi, but cannot be cured with antifungals—as a cause of corneal blindness. Its treatment has revolutionized the medical management of this serious eye infection. Last year, I was part of a study that showed the impact of early intervention in cases of corneal abrasions (superficial scratches to the eye). If we catch them early, we can stem the infection and save our patients from spending a lot of money on treatment. Most of these abrasions occur in agricultural fields. Almost every time, the closest eye centre that can facilitate early intervention will be an LVPEI ‘vision’ centre. The value of the LVPEI pyramid to such communities has come full circle.

This is the essence of LVPEI’s research. We do cutting-edge, world-class research in a developing country. Our research questions are rooted in the global South, and our solutions will transform the sight—and the lives—of millions of people everywhere. Because of this focus, LVPEI is a true blend of bench-to-bedside research that extends into communities. I believe that research that stays in laboratories and research publications may be meaningful, but research that is translational becomes impactful. LVPEI is committed to producing such impactful research.

-Prashant Garg