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TOMORROW'S EYE CARE, TODAY

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SPOTLIGHT: Combating the Rise of Visual Impairment HERE'S LOOKING AT: Integrated Partnership for Training the Asia-Pacific Region

Singapore General Hospital 🙀 Changi General Hospital General Hospital General Hospital General Hospital General Hospital Children's Hospital 🕖 National Centre Singapore 🔊 National Centre Singapore Natic

AT THE FOREFRONT: Glaucoma Researchers Secure \$25 Million Grant to Reduce Glaucomalinked Blindness in Singapore

RETINA From Dark to Light



PATIENTS. AT THE HE V RT OF ALL WE DO.

Editor's Note

A warm welcome to our latest edition of SingVision, coming at the start of a brand new year.

Our focus this issue is on the retina, a crucial part of the eyeball that enables us to see clearly. Age-related macular degeneration and diabetic retinopathy are two of the most common sight-threatening diseases in our population. This issue, see how our Singapore National Eye Centre (SNEC) eye care professionals manage these diseases with cutting-edge technology. We are also proud to show how the Singapore Eye Research Institute (SERI) conducts end-to-end clinical trials to help our clinicians establish better treatment options for patients. In the same vein, we look into the exciting field of genetic testing and therapy that has the potential to impact many who suffer from inherited retinal diseases.

Learn more about the \$25 million grant that was secured by our glaucoma researchers in SERI and what it entails. As the local population has a different spectrum of glaucoma conditions compared to other parts of the world, our researchers explain how such funding impacts our patients. Funding for research and clinical use also comes from our philanthropic arm, and we are excited to showcase the spectacular 10th Eye Ball.

We also feature our nursing staff and how day-to-day clinical practices can be improved with innovation and the Kaizen philosophy. Our award-winning ophthalmic imaging department also presents some of its best images to show our readers their stunning work. For parents, see what our orthoptists have to say as they discuss SNEC's Early Intervention programme that supports families with visually impaired children. Then, read about the final instalment of the Amanda the Panda trilogy where we learn about Amanda and her myopia journey, released to celebrate the third anniversary of the Myopia Centre.

Our education highlights also showcase our commitment to bringing highquality ophthalmic education to the Asia-Pacific region. Find out how SNEC collaborated with the Vietnam National Eye Hospital for a Train-the-Trainer programme. Our annual Eye Care Day and community eye care screening efforts are also presented in this issue.

We hope you stay engaged with us this issue. Wishing all readers a happy and prosperous 2023!

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Glaucoma Researchers Secure \$25 Million Grant to Reduce Glaucomalinked Blindness in Singapore

TARGET is an innovative approach with a thematic perspective for lowering glaucoma blindness. Population-based studies in Singapore have found that glaucoma, a progressive neurodegenerative disease of the optic nerve, is a major cause of visual impairment and blindness. Indeed, glaucoma is the leading cause of irreversible blindness globally. In 2013, it was estimated that glaucoma affected about 64.3 million people; this number is expected to rise to an astounding 111.8 million by 2040, with the majority of afflicted patients residing in Asia. Even though glaucoma is an incurable disease, several patients are able to retain their vision with surgery. It is regrettable then that roughly 20% of patients with glaucoma go blind.

With a goal of decreasing the rate of blindness caused by glaucoma in Singapore, the Singapore Eye Research Institute (SERI) announced a \$25 million glaucoma research programme titled **TA**ckling & **R**educing **G**laucoma Blindness with **E**merging **T**echnologies (TARGET) on 11 October 2022. The programme's objective is to achieve a significantly lowered rate of blindness caused by glaucoma in Singapore in the next ten years. The multidisciplinary and multi-institution five-year programm is supported by the National Research Foundation (NRF) Singapore under its Open Fund – Large Collaborative Grant¹ which is administered by the Singapore Ministry of Health's National Medical Research Council (NMRC).

Along with colleagues from the Singapore National Eye Centre (SNEC), National University Health System (NUHS), Duke-NUS Medical School, the Agency for Science, Technology and Research (A*STAR), Nanyang Technological University (NTU) and Changi General Hospital (CGH), the researchers have developed five themes under TARGET:



Theme 1: Understanding the Pathobiology of Glaucoma using a Precision Medicine Approach

Theme 2: New Technologies to Screen Undiagnosed Glaucoma and Monitor the Disease in the Community



GOAL: Establish a sustainable and effective screening programme and a community-based model for glaucoma screening



Normal Vision



Glaucoma

The goal of Open Fund—Large Collaborative Grant (OF-LCG) is to bring together the top teams from public institutions with the purpose of advancing human health and wellness, while simultaneously creating economic value for Singapore and Singaporeans. It aims to achieve this through the pursuit of excellence in research and its applications. The OF-LCG scheme supports patient-centric translational research, which is underpinned by a framework of basic and/or applied research. Theme 3:

New Technologies to Better Identify Rapid Progressors

Theme 4: Novel Technologies to Circumvent the Problem of Poor Adherence

Theme 5: Targeting Age-associated Metabolic INsufficiency in Glaucoma with Nicotinamide ("TAMING Glaucoma Trial")

With a focus on reducing the rate of glaucoma-linked blindness, the researchers hope that efforts from the TARGET programme will bring about better quality of life for seniors even as they age. In a study conducted in 2000 among selected residents in Singapore's Tanjong Pagar district, it was discovered that the prevalence of glaucoma was 3–4% and contributed to 60% of bilateral blindness. In another study conducted by the Singapore Epidemiology of Eye Diseases, it was observed that glaucoma was among the primary three causes of bilateral blindness. As Singapore navigates a rapidly ageing population, glaucoma will be on an alarming rise as advancing age is a key risk factor for the disease. Hence, the healthcare burden of neurogenerative diseases like glaucoma will only escalate in the coming years.

As early diagnosis and treatment is key in tackling glaucoma, one of the projects under TARGET includes the development of artificial intelligence (AI) software for ophthalmologists to diagnose patients during a routine eye check-up, and to screen for undiagnosed glaucoma in communities. There are also other projects that aim to test patients for genetic risk factors for glaucoma, and developing new treatments.

"The spectrum of glaucoma in Asia differs from that in the West, and with SNEC and SERI ranking second in the world for glaucoma research, Singapore is an ideal place to advance glaucoma research in Asia," said Professor Aung Tin, Chief Executive Officer, SNEC and Lead Principal Investigator for TARGET. "We are extremely grateful to the NRF and NMRC for the \$25 million grant, which will help support our TARGET programme which we hope will decrease the rate of blindness caused by glaucoma in Singapore over the next decade. The team is passionate about this and we hope that our research can lead to improved patient care and cost savings for healthcare systems, not just in Singapore, but also in the region and beyond."

RETINA *From Dark to Light*

Learn about SNEC's and SERI's holistic approach to retina care in this issue's cover story. From groundbreaking research leading to development of novel therapeutics, education efforts to raise awareness among medical professionals and patients about inherited retinal diseases, to patientcentric enhancements to clinical care for those who need intravitreal injections. SNEC and SERI continue to be a forerunner in retina care, striving to improve outcomes for patients and ultimately saving their sight.

SEEKING THERAPIES FOR nAMD AND DME (RESEARCH)

- New sight-saving ophthalmic drug a culmination of decade-long collaboration between Singapore Eye Research Institute and Roche
- Vabysmo® (faricimab) is the first dual-action drug targeting neovascular age-related macular degeneration and diabetic macular edema, potentially reducing treatment burden in patients.

Neovascular age-related macular degeneration (nAMD)¹ affects about 20 million people globally and is the leading cause of vision loss in those over 60 years old. It will affect even more people as the global population ages. Meanwhile, diabetic macular edema DME² affects around 21 million people worldwide; this number is similarly expected to increase as diabetes grows more prevalent. It is associated with blindness and decreased quality of life if left untreated. Patients who receive current eye injections targeting the vascular endothelial growth factor (VEGF) alone require them frequently for visual and anatomical correction. Those with DME are still in need of more effective and longer-lasting therapies and medicines that reduce treatment frequency while addressing the multifactorial nature of retinal diseases.

Age-related macular degeneration (AMD) is a condition that affects the part of the eye that provides sharp, central vision needed for activities like reading. Neovascular or "wet" AMD (nAMD) is an advanced form of the disease that can cause rapid and severe vision loss. It develops when new and abnormal blood vessels grow uncontrolled under the macula, causing swelling, bleeding and/or fibrosis.

Diabetic macular edema (DME) is a vision-threatening complication of diabetic retinopathy. DME occurs when the damaged blood vessels leak into and cause swelling in the macula – the central area of the retina responsible for the sharp vision needed for activities like reading and driving.

Collaboration for better treatment

The Singapore Eye Research Institute, following a decade-long collaboration with Roche, unveiled a new sight-saving ophthalmic drug in June. Vabysmo[®] (faricimab) treats nAMD and DME. Roche developed and manufactured the drug while SERI's research team gathered the evidence needed to facilitate clinical trials.

Vabysmo is the first bispecific antibody designed for the eye. It targets and inhibits two pathways — angiopoietin 2 (Ang-2) and vascular endothelial growth factor-A (VEGF-A) — that are activated in retinal diseases which can result in vision loss. The medicine inhibits both pathways, stabilising blood vessels. It restores vascular stability by reducing vessel leakage and ocular inflammation.

Fewer sessions, comparable efficacy

Four studies investigating the efficacy of Vabysmo found that most people treated with faricimab

intravitreal injections could go up to four months between injections, as opposed to the standard two months or monthly. This cuts down patients' treatment sessions, which can reduce their burden of treatment. Besides reducing treatment frequency, the drug also helps patients achieve visual gains.



"We are honoured to be a part of the development of Vabysmo in partnership with Roche. This is another exciting milestone for SERI, and we celebrate it because patients with nAMD and DME now have another option to help retain their vision," said Professor Gemmy Cheung, Head

of the Retina Research Group at SERI and Medical Retina Department at Singapore National Eye Centre.

"Vision loss caused by retinal conditions can be physically, emotionally and economically



devastating for people with nAMD and DME. Vabysmo represents a new approach that can help improve vision outcomes for longer periods and potentially reduce the burden of disease with fewer injections compared to with current available therapies," said Dr Sivabalan Sivanesan, Director of Medical & Regulatory Affairs at Roche Pharmaceuticals, Singapore. "We are proud that our partnership with SERI has brought this new option to patients and are committed to our continued collaboration to address the needs of people living with retinal conditions in Singapore."

Developing new therapies and diagnostics have been a key focus of our work. Our Translational Asian Age-related macular degeneration Programme (TAAP) has been boosted by a recent \$24 million collaborative grant from the National Medical Research Council. Collaboration between academia with industry partners, such as SERI with Roche, is very important in expediting the bench-to-bedside translation," explained Prof Cheung. "AMD is a disease that requires highly personalised treatment. As such, the more treatment options there are available, the better it is for patients."

SERI's forte in end-to-end clinical trials

Over the last 25 years, SERI has developed several therapeutics internally. One of its most notable successes is the low-dose atropine drug Myopine[™], which aims to slow down the rapid progression of myopia in children, with minimal side effects. After a series of landmark clinical trials, it was clinically proven that 0.01% of atropine can slow down myopia by as much as 60% in young

children, compared with untreated children. Myopine[™], unveiled in 2013, has since been licensed to companies in at least 12 countries in Asia and Europe, and is available for patients locally and overseas.

The drug development process usually takes around a decade: from the initial discovery stage to pre-clinical development, three to four phases of clinical trials, and finally to approval from authorities. SERI is one of the few research institutions worldwide that has the capabilities and resources to see ophthalmic drug development from pre-clinical stage through to clinical trial phase (end-to-end), all under one roof.

"When it comes to handling clinical trials, its logistics and administrative requirements, SERI has a competitive edge over counterparts around the world. As an academic centre that enjoys close ties with a clinical centre, SERI performs these trials seamlessly and efficiently. This gives industry players a strong reason to work with our team when they are looking to manufacture ophthalmic drugs, a process where speed, accuracy and quality are big considerations," said Professor Jodhbir Mehta, Executive Director of SERI.

SHARING EXPERTISE ON INHERITED RETINAL DISEASE

The rates of vision loss and blindness from common eye diseases such as diabetic retinopathy and glaucoma have decreased over the past few decades due to better treatments and access to care. In many developed countries, these are no longer the top causes of blindness in working-age adults. Rather, inherited retinal disease has become the leading cause.

Inherited retinal diseases, also known as retinal dystrophies, are a group of blinding retinal conditions caused by genetic mutations that are usually inherited from one's parents and can be passed down in families. They can be caused by mutations in more than 250 different genes and present with blindness or loss of vision from as early as birth, through to early childhood or sometimes later in adult life. Because they tend to affect young individuals, these diseases greatly impact their quality of life. These conditions have traditionally been thought of as "untreatable", but ground-breaking research has led to the regulatory approval of the first gene therapy treatment for an inherited retinal disease in 2017. This major scientific breakthrough, together with ongoing research in this field, offers hope for new treatments for patients around the world living with these inherited retinal diseases.

In preparation for new treatments and clinical trials that will be available in the coming years, SNEC and SERI have invested in clinical and research efforts to better understand the local burden and landscape of inherited retinal disease in Singapore and the region. Around 5,000 individuals live with inherited retinal disease in Singapore, and many more in Southeast Asia. The dedicated Inherited Retinal Disease Clinic (or IRD Clinic) at SNEC has



expanded and offers specialised retinal imaging, electrophysiology, and genetic testing, together with subspeciality expertise and genetic counselling.

Around the world, it is common for many patients with inherited retinal disease to experience long diagnostic journeys, consulting many different doctors and undergoing many diagnostic tests before the exact disease and gene causing their disease is identified. This prolonged uncertainty has negative psychosocial effects and also delays potential treatment options for them. One of the most important ways to improve the diagnosis of inherited retinal disease is by raising awareness and education in this subspeciality among ophthalmologists and retinal specialists.

To this end, since the start of 2022, SNEC has formed a partnership with Professor Edwin Stone from the University of Iowa Institute of Vision Research to conduct monthly teaching rounds on inherited retinal disease. Professor Stone is a giant in the field and has dedicated his career to curing inherited retinal blindness. A virtual "extension" of the regular "Stone Rounds" that have been conducted weekly at the University of Iowa for the past 25 years, these monthly teaching rounds conducted via teleconference feature interactive case discussions and teachings centred around local inherited retinal disease cases and have been well-attended by retinal specialists and ophthalmology trainees from various hospitals in Singapore. We look forward to furthering education and research collaborations between Singapore and Iowa, to work towards our common goal of curing inherited retinal blindness.

IMPROVING THE FUTURE OUTLOOK OF GENE TESTING AND VISION LOSS

At SNEC, patients with poor vision due to inherited retinal or macular dystrophies are seen in a specialised clinic run by ophthalmologists and genetic counsellors. Investigations conducted include Optical Coherence Tomography (OCT) scans of the macular or retinal centre, wide field colour and autofluorescence imaging of the retina, Goldmann visual fields, and electrophysiology to assess the function of retinal photoreceptors.

The initial workup can also include a general medical check-up by a geneticist to exclude a systemic condition linked to their visual state.

Genetic testing is offered to all our patients with retinal and macular dystrophy. It can determine the mode of inheritance and, therefore, the risk to future generations. In addition, once the causative genetic mutation is known, there is the possibility of future enrolment into therapeutic research trials. Pre- and post-test genetic counselling are done by specially trained genetic counsellors in our clinics.

Patients may also be referred to supportive services such as the SNEC Low Vision Clinic where a detailed evaluation by specially trained optometrists assesses visual function so appropriate visual aids can be recommended. Patients are generally reviewed in our specialised clinics every 6 to 12 months for monitoring.

Prospects for gene therapy

Luxturna treatment made history in 2017 by being the first gene therapy approved by the US Food and Drug Administration (FDA). It targets severe early-onset childhood retinal dystrophies caused by mutations in the RPE65 gene. Local eye care professionals are optimistic this treatment will be available locally very soon. Currently, there are numerous gene therapy trials for retinal and macular dystrophies caused by other genetic mutations.

Low vision in Singapore

Those with low vision suffer from vision impairment that glasses, contact lenses, medication or surgery Patients, as
Patients, as
recently as
10 years ago,
were told that
nothing can be

done for them, making them lose hope. But today, we can offer patients genetic testing; I tell them that there is now a chance for possible treatment within their lifetime.

Dr Chan Choi Mun Senior Consultant Medical Retina Dept, SNEC

cannot correct. The definitions of visual impairment (VI) and blindness vary among countries since they are usually used to establish disability benefits and social support services. Singapore assesses the two according to the number of Activities of Daily Living (ADLs) affected by the patient's disabilities and systemic health (not limited to vision).

The condition applies to a range of people: those affected may experience different degrees of vision loss ranging from reduced vision clarity to difficulty seeing in the dark or glare sensitivity, all of which can affect their ability to perform ADLs. Affected individuals may also find tasks such as reading, cooking and navigating difficult. However, they can learn to use devices and develop skills to manage such tasks independently with appropriate rehabilitation.

Young children in particular can be greatly impacted by low vision, as it can affect areas of development such as speech, communication, mobility and independence. Programmes catering to children with low vision target their education and rehabilitation needs so they acquire the necessary skills to lead an independent and fulfilling future.

IVT: BY NURSES, FOR PATIENTS

Intravitreal (IVT) injections may appear daunting for some, but patients experience minimal pain. The entire process only takes between 5–10 minutes, and rarely causes severe side effects. Minor discomfort and dry eyes may occur, but they can be relieved with eyedrops or may disappear on their own. While some may experience a tiny pinpoint blood clot on the surface of the eye where the needle enters, this usually heals within 1–2 weeks. Infections are also very rare.

Patients' awareness of their condition is heightened due to increased screening and improved health literacy. SNEC carried out nearly 23,000 IVT injections in 2022, a significant increase from approximately 5,000 in 2013. Its patient education programme helps patients learn more about the injections and procedures.





Enhancing healthcare affordability and efficiency

To improve patient experience, SNEC streamlined its workflow to reduce waiting time for patients: following training by senior eye doctors, senior nurses have stepped forward to administer intravitreal injections for patients. This arrangement reduces waiting time and lowers the cost of the procedure since patients do not have to pay a fee for seeing a doctor.

Dr Loh Huey Peng, Director of Nursing, SNEC remarked, "Nurse-led IVT service started in 2018, and today, 90% of the procedures are efficiently performed by highly competent nurses. Nurse-led IVT will continue to evolve with expanded roles of IVT nurse trainers, who will play a significant role in training next generations of nurses to meet the rising demand locally and regionally."

Combating the Rise of Visual Impairment

The Workshop on Eye Health for All in the Western Pacific Region: Planning for Action discussed key strategies to develop the capabilities of the eye health sector. SNEC was proud to have hosted a Workshop on Eye Health for All in the Western Pacific Region: Planning for Action from 3 to 4 November 2022 in Singapore! The World Health Organization (WHO) Regional Office for the Western Pacific region collaborated with the International Agency for the Prevention of Blindness (IAPB) to convene the event.

Prevalence of Vision Impairment

To date, more than 2.2 billion people around the globe have near or distance vision impairment. Almost half of these impairments could have been prevented or have not yet been addressed. Avoidable blindness occurs most frequently in Southeast Asia and the Western Pacific region, with 28% and 26% of the populations affected respectively. Furthermore, over 90 million people in the Western Pacific region experience visual impairment; the region has the largest number of people affected by diabetic retinopathy. The Asia-Pacific region also has the highest prevalence of myopia at 53.4%, followed closely by East Asia at 51.6%.

A Roadmap for Better Eye Care

The workshop aimed to develop the capacity of member states and stakeholders in the region to plan for and deliver integrated people-centred eye care (IPEC). This was to stay in line with 2030 In Sight, the joint eye health sector strategy of the IAPB. To meet its aims, the workshop had 3 main objectives. Firstly, to strengthen the integration of eye health within non-communicable disease prevention, control and overall health systems. Secondly, to introduce WHO's newly published *Eye Care in Health Systems: A Guide for Action.* Thirdly, to facilitate the engagement of Member States and relevant stakeholders with the newly-developed WHO eye health tools.

SNEC and SERI will continue to work together with WHO, IAPB and relevant stakeholders in the region to improve the regional prevention of blindness.

Improving Eye Care in Multiple Domains for Everyone

Additionally, SNEC has set up the SNEC Global Ophthalmology Office (SNEC GO) which zeroes in on three main domains: education, research, and outreach and capacity building to support the objective of improving regional prevention of blindness. Firstly, it aims to spearhead the global training field for eye care professionals and become a regional ophthalmic education hub. Additionally, it will focus on promoting and conducting eye care research addressing prevailing challenges regarding ocular diseases in Southeast Asia. Lastly, it seeks to boost the capacity of ophthalmic institutes in the region to enhance the provision of eye care to all regardless of socioeconomic status.

Moving forward, SNEC GO will carry on harnessing the available expertise in SNEC and SERI to advance ophthalmology in the Asia Pacific region and beyond.



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The need for change and services in our region is significant – and continues to grow. There are insufficient human resources to meet the need and the key to this is a primary care-focused approach with ophthalmic personnel to fill the gap and ensure quality services are provided. The leadership of SNEC in the region is critical. The training, capacity-building skills and experience that SNEC brings to the sector are needed and, indeed, very timely. Many of our stakeholders are requesting this type of support, and we look forward to continuing to work with you to facilitate exchanges and *support throughout the region.*

Ms Amanda Davis

Chair at the International Agency for the Prevention of Blindness (IAPB), Western Pacific

Early Intervention(EI) by
OrthoptistsSNEC's Early Intervention
programme supports
parents in caring for
visually impaired children.

Child development is greatly dependent on vision. As such, blind or visually impaired children are affected in their development. Under the Early Intervention (EI) by Orthoptists programme, eyecare professionals perform an orthoptic and vision assessment to ensure such children can get the care they need. They also share strategies for optimising vision, such as visual stimulation techniques, with the parent or caregiver to support them. El caters to children ranging from infants to 5-year-olds and customises strategies to each child's needs for vision optimisation.

Parents who are concerned about their child's vision or whose child does not meet the following development milestones should bring them to an eye specialist for further assessment.

Vision Development Milestones

The following are some of the signs of normal development for children from birth to two years of age. Parents and caretakers should keep in mind that each child is different, and may hence learn and grow at a different pace. Such differences may or may not be cause for concern. It is important to continually observe the child's growth and development.



Ophthalmic Imaging

SNEC does Singapore proud at annual ophthalmic photo competition by the Ophthalmic Photographers' Society

The Singapore National Eye Center participated in the annual ophthalmic photo competition organised by the US-based Ophthalmic Photographers' Society. Over the past two years, SNEC secured 24 out of 68 awards in the competitions.



Here is a photo of a patient's cataract operation. An intraocular lens is inserted into the eye to restore vision. However, in this photo, the lens has moved out of its original position. Another surgery would be needed to reposition the lens behind the pupil. The image was awarded the first place, Best in Show in 2021 at the annual meeting of the American Society of Cataract and Refractive Surgery (ASCRS) and the American Society of Ophthalmic Administrators (ASOA).



This stereo pair image — two views of the eye placed side by side — shows an eye with an inflammatory disease that can result in blindness — Vogt-Koyanagi-Harada syndrome. Those exhibiting this disease are frequently treated with immunosuppression medicines. These include steroids that control the disease and prevent blindness. The patient's arm has been injected with a dye which travels to the eye and reveals the blood flow in the blood vessels underneath the retina.



In this highly magnified photo, the growth of scar tissue on the macula is evident. The macula is the central area of the retina. This is where most of the images we see are formed. Scarring in the form of fine lines emerges from the centre of the macula, instead of providing a smooth surface. It is challenging for this eye to see with clarity; it also experiences the distortion of images — things appear to be of a different shape and size. In 2021, this image was accorded first place at the ASCRS-ASDA annual meeting.



In the lower part of this image which is highly magnified, the gentle curve is the pupil margin. A large cluster of pigmented cell deposits that are located just behind the pupil are above the arc. The release of pigment into the eye structures can be caused by some diseases. This image won second place at the 2021 annual virtual meeting of the AAO/OPS.



Nurtu Ping Inclusivity With Kaizen

SNEC nurses took another small step to improve healthcare experiences — this time for those with hearing difficulties.

SNEC adopted Kaizen in April 2021. A Japanese business philosophy, it advocates change for the better through making small changes. Previously, SNEC nurses followed this mindset to make evaluation rooms safer by reducing congestion and fall risks. This time, they decided to improve healthcare delivery for patients with hearing problems.

Ms Foo Lee Lian, Assistant Director of Nursing, National Heart Centre Singapore (NHCS), noticed that when communicating with patients who were hard of hearing, nurses were resorting to raising their voices when speaking, even when discussing personal and sensitive medical matters. To counter this, the nurses introduced the "Pocket-Talker", a sound amplifier, to the workplace. The device can be used with the patient's hearing aid and reduces background or ambient noise. The staff and patients were pleased with the privacy it afforded, as well as at how patients were much less likely to mishear information and essential post-operative instructions.

Currently, the operating staff use the Pocket-Talker to communicate effectively with patients during the pre-operative assessment. Pharmacists can also use it when dispensing medication. SNEC hopes to introduce the device to patients in outpatient clinics and operating theatres in the future.









Staff Nurse Chan Sze Lin Nursing (Day Ward) *Singapore National Eye Centre (SNEC)*



Staff Nurse Linnett Lim Jia Yan Nursing (Day Ward) *Singapore National Eye Centre (SNEC)*

SNEC Myopia Centre marks 3rd anniversary with final instalment of the Amanda the Panda trilogy



The Singapore National Eye Centre's Myopia Centre commemorates its third anniversary in 2022. To celebrate the milestone, a social media campaign was mooted to promote eye health and educate parents and young children on preventing early onset of myopia. This is the first time that SNEC embarked on a social media campaign of this nature to promote myopia awareness and education.

The campaign, in partnership with EssilorLuxottica, was centred around the launch of the third and final book of the Amanda the Panda trilogy. *Amanda the Panda Joins the Fight Against Myopia*, co-authored by Associate Professor Marcus Ang and Professor Wong Tien Yin, continues to bring readers on Amanda's journey as she graduates from Pancity University and decides to dedicate herself to caring for the eyes of young pandas.

A media kit comprising the book, myopia education brochures, eye test chart, and items for outdoor play like bubble wands, picnic mats, and sunglasses, were packaged in a panda-themed tote bag and seeded to 25 media and social media influencers. The recipients were encouraged to share with their readers and followers the importance of taking care of their children's eye health, and some tips parents can take to help delay the onset of myopia such as bringing their children for regular eye examinations.

Amanda the Panda Joins the Fight Against Myopia is available for purchase at https://shop.wildtype.media/collections/ childrens-books. The first and second books in the series Amanda the Panda: Outdoor Play Keeps Myopia Away and Amanda the Panda: Goes to the City aim to teach children that outdoor play is vital in caring for their eyes, and that they should take regular breaks between reading and studying. The books are also available at for loan at the National Library Board.



TRANSFORMING Dive

As the demand for corneal graft operations surges post-pandemic, the Singapore Eye Bank remains diligent in raising awareness about donating corneas among the community.

Local demand for corneal graft operations to restore eyesight has been growing. During the peak of the Covid-19 pandemic, only emergency grafts were allowed due to health and safety restrictions implemented then. Once the restrictions were lifted, healthcare professionals had to perform many corneal transplants due to enormous pent-up demand and the resumption of travel.

In 2021, 316 corneal transplants were performed at SNEC alone, and the number is expected to balloon further in 2022. Presently, many patients who require the surgery still depend on corneas donated from overseas eye banks as the local supply cannot fully meet the high demands. While such foreign sources provide a short-term solution, the Singapore Eye Bank understands that this is far from ideal.

As the national eye bank, one of its key functions is organising activities that spread awareness among the community to promote the donation of

corneas and organs, as well as garner support for hospital staff. One such event is the annual National Eye Care Day event spearheaded by SNEC. The Singapore Eye Bank set up a mini-booth at SNEC to boost awareness of corneal donation and how it helps many patients in Singapore. At the booth, interactive games, brochures, message boards and posters were implemented to engage visitors and staff working at the eye centre.

The event was a rounding success! Doctors, nurses, ancillary staff, patients and their caregivers came together to show their support for the eye bank. By regularly conducting such events at various locations, the eye bank hopes to spread its message to as many individuals as possible.

If you want to learn more about corneal and organ donation, please visit the Ministry of Health website at www.liveon.gov.sg! Support your fellow Singaporeans by spreading awareness and making a donation today.



Bringing Eye Screening to the Community

World Sight Day 2022 saw SNEC and Lions SaveSight Centre (Singapore) coming together to lower rates of preventable blindness by raising awareness in various communities.

Singapore National Eye Centre, Lions SaveSight Centre (Singapore), and Bukit Batok Community Centre — in conjunction with World Sight Day 2022 — organised an eye screening event for 300 residents of Bukit Batok on 9 October 2022.

This event was one of the first major community eye screening events since the COVID-19 pandemic. World Sight Day 2022 is observed annually in October to raise global awareness of eye health. Doctors at the event screened the residents for age-related eye conditions such as cataracts and glaucoma.

"Bringing the eye screening programme to the community makes eye checks more accessible and convenient for residents. Many causes of visual impairment when detected early can be cured. However, most people, especially the elderly, do not get their eyes checked regularly, hindering early detection of common eye diseases," said Dr Allan Fong, Head, Cataract and Comprehensive Ophthalmology Dept, SNEC.

As such, SNEC and Lions SaveSight Centre have since 2008 jointly organised community-based events at various Community Centres and HDB estates to promote and bring eye screenings to the public. This year, 70 SNEC doctors, nurses and medical social workers convened to conduct the screening programme and highlight the importance of eye screening. Residents were given a report after the screening. They were also advised on the next steps such as consulting with a specialist of their choice if the doctors detected any eye conditions.

SNEC's community efforts and Lions SaveSight Centre's preventive blindness programmes complement each other in multiple ways. This synergy, coupled with Lions' network and its members' volunteer spirit greatly enhanced the programmes' reach and effectiveness. The public sector could therefore work hand in hand with voluntary welfare organisations to provide primary eye care services to the needy.

Industry partners Topcon Medical Singapore Pte Ltd, Mandarin Opto-medic Pte Ltd and Carl Zeiss Pte Ltd also supported the programme by loaning ophthalmic equipment.



Boosting Eye Health Awareness with Eye Care Day

Many common age-related eye conditions are treatable — SNEC organises outreach and awareness programmes to advocate check-ups and treatments.

The 23rd National Eye Care Day was organised by SNEC together with the Eye Departments at Tan Tock Seng Hospital, National University Hospital and Khoo Teck Puat Hospital. This year's theme, "Your Eyes as You Age – Ensuring Good Vision in Your 40s, 50s and Beyond", focused on the common eye conditions faced by adults and seniors. A series of educational talks were put together where doctors discussed a wide variety of age-related eye conditions, such as cataract, glaucoma, diabetic retinopathy and presbyopia.

As these conditions are relevant to Singaporeans, especially those aged 40 and above, the event serves the important purpose of spreading awareness of such conditions and their treatments. Cataract, one of the most prevalent conditions faced in Singapore, is reversible and easily treatable. Another condition, glaucoma, is a major cause of blindness in Singapore, but early detection and treatment can save one's vision. Diabetic retinopathy is another leading cause of blindness. It often has no early warning signs, thus screenings are vital for detection, especially for those with diabetes. Through SNEC's efforts, outreach and awareness programmes spread the importance of check-ups and treatments. As Professor Aung Tin, CEO of SNEC, says, "Some of these eye conditions may be easily treated, while others may pose a threat to your vision as you age. Thus, knowing more about them and adopting proper eye care, such as going for regular eve screenings, can help keep our eyes healthy and



preserve a good quality of life."

The national community eye care programme was first hosted by SNEC 22 years ago, in 2000. Since its inception, the annual event has served as the flagship community outreach programme and continues to be popular with the general public and with all ages. This year is no exception, with over 4,000 registrants for the English and Mandarin programmes.

A Decade of Eye Balls

WANT

Two years since the pandemic, The Eye Ball returned with roaring success thanks to the continuous generosity and ardent support from friends and donors of SNEC and SERI.



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We look forward to sharing precious memories with you. On behalf of VisionSave, I thank you for investing in the future of our eye health and giving hope to the most vulnerable. 99

Clin Assoc Prof Ho Ching Lin Chairperson of The Eye Ball 2022 organising committee The Eye Ball 2022, following a two-year hiatus caused by the COVID-19 pandemic, made its long-awaited reappearance. Though the pandemic has declined over time, donors' and supporters' generosity did not wane. With their help, more Singaporeans can access highquality eye care and sight-saving treatments.

The pandemic has taught us important lessons in healthcare, including the value of continually advancing ourselves to keep up with the ever-changing world of healthcare provision. During the last two years, SNEC and SERI have been hard at work, expediting crucial changes and transformations in the eye care industry. Such changes range from patient data management to alternative service delivery models, from technology and innovation for diagnosing. They also include vital aspects of healthcare such as increasing access to eye care for all and improving the treatment and prevention of disease conditions.











Following the easing of community measures, the Eye Ball 2022 held on 4 November saw 566 guests. This year's theme — Metamorphosis: Vision & Transformation not only reinforced VisionSave's mission of saving sight but also showcased changes that were introduced to provide better eye care services and patient experience. The annual signature fundraising gala dinner, plays a significant role in turning initiatives into realised projects, enabling improved eye care provision and advancing the ophthalmology practice in Singapore.

As the 10th Eye Ball, it was especially exciting for organisers and guests alike. Aside from the visually stunning theme, guests witnessed an elegant variety of culinary creations and beverage selections. An array of exquisite items and experiences were also generously donated by sponsors and put up for auction, raising S\$1.08 million.





Scan to donate

Every gift makes a difference, regardless of the amount. All eligible donations will enjoy a 250% tax deduction. Donations will automatically be included in the donor's IRAS tax assessment. Donate now to support our mission to save sight and our patients' lives.

www.visionsave.sg/donate











Integrated Partnership for Training the Asia Pacific Pacific Region

SNEC — through educational programmes launched jointly with other eye health organisations cultivates Asia-Pacific's eye care ecosystem. SNEC has been developing various educational programmes that will provide training for diverse eye care workforce locally and is now exploring opportunities to share the knowledge with the regional countries. Knowing the disparity in the eye care workforce in the region, SNEC is embarking on a mission to transform eye care workforce capacity in the region through various initiatives. It is also partnering with suitable stakeholders to achieve this mission and aims to be the regional ophthalmic education hub.

In December 2020, SNEC entered a strategic partnership with Santen Pharmaceutical Asia Pte. Ltd. to facilitate educational programmes for healthcare professionals in Asia-Pacific regions like Vietnam, Indonesia, Philippines, Thailand and Malaysia.

The partnership aims to collaboratively cultivate and utilise an augmented educational programme to tackle the scarcity of trained healthcare professionals. It ensures the expansion of a regional eye care ecosystem. The programme is conducted by way of integrating knowledge delivery through the online learning management platform and skills delivery via an on-site, hands-on skills development practicum.

In June 2022, the first programme was launched at the Vietnam National Eye Hospital (VNEH), with a five-day onsite Train-the-Trainer programme. A pool of VNEH master trainers underwent this extensive programme that equipped them with the theoretical concepts of teaching pedagogy as well as the facilitation skills to deliver the "SNEC Allied Ophthalmic Program (AOP) for VNEH". From the end of July up to mid-September 2022, VNEH conducted a two-month offsite pilot programme, which allowed VNEH master trainers — with the co-facilitation and support of the SNEC education development team — to take on the lead role in delivering the programme to overall 23 VNEH trainees.

Thirteen AOP topics were provided through the pilot programme. This included two competency-based basic ophthalmic investigation skills such as visual field and instilling eyedrops. Interactive e-learning content was developed and translated to Vietnamese. During a site visit, the education development team expanded their comprehension of VNEH's clinical workflow and patient load. Additionally, they familiarised themselves with the equipment used so as to increase the relevance of the pilot programme by contextualising skills training. At the conclusion of each module, a modular review and feedback sessions were conducted in order to evaluate and make necessary improvements to the programme.

With a full AOP programme launch in the works at VNEH, SNEC, Santen and VNEH are working in close collaboration.

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The capacity development initiative aims to capitalise on the tasksharing strategy to upskill staff who can release the clinicians from doing repetitive investigations and focus on seeing more patients and doing surgeries with the time saved from delegating such services to the trained staff from the programme. Considering the pressure to the entire eyecare workforce due to COVID-19 and increasing eye care burden, such capacity development programmes are essential in optimising available workforce, preparing for the new normal and working towards improving the future of eyecare in the country.

Prof Ian Yeo Head SNEC Academy



Ingrown Eyelashes

What are ingrown eyelashes?
 Ingrown eyelashes occur when an extra row of eyelashes grows closer than normal to the eye. They rub against the eye surface, causing irritation and discomfort. The condition, termed entropion, is when the lower eyelid turns inward such that the eyelashes rub against the eyeball. If the condition persists, the cornea may be scarred or damaged.

Q How are ingrown eyelashes or entropion treated?

A Entropion results in irritation and in severe cases can lead to permanent blurring of vision. Ophthalmic surgeons trained to manage the condition should ideally treat it. It requires surgery which ensures that the lower eyelid and its attachments are tightened, thus restoring some of its elasticity and repositioning it. In the case of delayed surgery, the eyelid can be temporarily positioned and protected with sutures or tape. As these are only temporary measures, they do not provide a cure for entropion.

What complications can entropion lead to?

A If entropion remains uncorrected and longstanding, the cornea may scar gradually. An increase in the risk of infection to the cornea may be another consequence. Before these complexities damage the eye permanently, it is necessary to treat and repair the condition. In case entropion is spotted in an eye that will undergo cataract surgery, the lid abnormality should be addressed first.

What causes ingrown eyelashes?
 The most common cause of ingrown eyelashes is muscle weakness due to ageing. Tendons and muscles that would usually hold the eyelid taut against the eye stretch out and the eyelid begins turning in. The skin on the inner surface of the eyelid, scarred by chemical burns, trauma or surgery may distort the normal curve of the eyelid, causing it to also turn inwards, as can chronic infections and inflammation.

What are the symptoms of ingrown eyelashes or entropion?

As ingrown eyelashes are constantly rubbing against the cornea and conjunctiva, the following symptoms may occur:



If you experience one or more of these symptoms, it is best to contact your ophthalmologist for a complete eye examination.

Floaters and Flashes

What are floaters and flashes?
 Floaters are flying flies or dots that you may sometimes see moving in your field of vision. They are tiny clumps of cells inside the vitreous (a gel-like fluid) that fills the inside cavity of your eye. While you may get the feeling that these spots or lines are in front of your eye, in reality, they are actually floating inside it. These clumps cast shadows on the retina — the layer of cells lining the back of the eye that allows you to see — giving you the impression of floating particles in your vision.

Flashes are the illusion of flashing lights or lightning streaks that occur when the vitreous gel inside your eye rubs or pulls on the retina. They can be a small flash in just one spot or several flashes across a wider area of vision.

Q What causes floaters and flashes?

A Floaters and flashes may occur at the same time due to the degeneration of the vitreous gel as you age. Eye injuries or excessive rubbing of the eyes can result in floaters as well. In the situation where the degenerated vitreous pulls away from the retina and tears it, slight bleeding in the eye will occur and this may appear as a group of new floaters.

Severe retinal tearing may develop into retinal detachment, resulting in visual loss.

Q What can I do to prevent floaters and flashes?

A There is no known prevention for floaters and flashes which are usually quite harmless. Flashes usually diminish with time although the floaters may remain. It is therefore important to maintain good eye health and have your eyes checked regularly.

What kinds of treatment are available for floaters and flashes?

A Floaters and flashes rarely lead to any serious complications and hence no treatment is required in general. The effect of floaters can be minimised by wearing dark glasses when you are out in the bright sunlight or when you are looking at a brightly lit surface. Flashes usually disappear with time.

However, if you experience a sudden episode of floaters and flashes, particularly if this is followed by a dark shadow blocking a corner of your vision, you should consult your ophthalmologist immediately. Timely treatment with a laser or, in severe cases, surgery can help to prevent severe vision loss.



Applauding our doctors for their exemplary

PROMOTIONS



Dr Chan Jin Hoe Senior Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Assoc Prof Ting Shu Wei Daniel Senior Consultant, Surgical Retina Department, SNEC



Dr Woo Jyh Haur

Senior Consultant, Corneal & External Eye Disease Department, SNEC



Dr Nathalie Chiam

Consultant, Paediatric Ophthalmology & Strabismus Department, SNEC



Dr Fenner Beau James Consultant, Medical Retina Department, SNEC



Dr Reuben Foo Consultant, Neuro-Ophthalmology Department & Glaucoma Department, SNEC



Dr Ng Wei Yan

Consultant, Paediatric Ophthalmology & Adult Strabismus Department, SNEC



Dr Tan Peng Yi Consultant, Refractive Surgery Department,

SNEC

efforts and contributions

NEW APPOINTMENTS



Dr Farah Nur Ilyana Binti Mohd Ibrahim

Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Dr Lim Sing Hui Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Dr Loo Yunhua

Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Dr Nicole Sie Ming

Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Dr Joanna Sia Kee Ki Clinical Associate, Clinical Services Department, SNEC



Dr Tan Tien-En Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC



Dr Sanjay Srinivasan Senior Resident Physician, Clinical Services Department, SNEC

Applauding our doctors for their exemplary efforts and contributions

NEW APPOINTMENTS

Director, Outpatient Services (OPS)



Clin Assoc Prof Boey Pui Yi Head, SNEC Eye Clinic @Bedok; Senior Consultant, Glaucoma Department, SNEC

Chief Data and Digital Officer



Assoc Prof Ting Shu Wei Daniel

Deputy Director, *Regional/Community Eyecare;*

Senior Consultant, Surgical Retina Department, SNEC

Chair, Infection Control Committee



Dr Wiryasaputra Shaan

Consultant,

Medical Retina Department & Ocular Inflammation & Immunology Department, SNEC

Director, Operating Theatre & Inpatient Services (OTIS)



Clin Assoc Prof Lee Shu Yen

Head & Senior Consultant, Surgical Retina Department, SNEC

Deputy Chief Medical Informatics Officer



Dr Ng Si Rui Consultant, Glaucoma Department, SNEC

Director,

Transformation & Innovation Office of Strategy, Innovation & Organisation Transformation



Dr Kelvin Teo Clinical Director, SNEC Ocular Reading Centre (SORC); Consultant, Medical Retina Department, SNEC

Programme Lead, Optometry Training



Dr Farah Nur Ilyana Binti Mohd Ibrahim

Associate Consultant, Cataract & Comprehensive Ophthalmology Department, SNEC

AWARDS

Association For Research In Vision & Ophthalmology (ARVO)

ARVO Achievement Award – Friedenwald Award 2023 Prof Wong Tien Yin

37th Asia-Pacific Academy Of Ophthalmology (APAO) Congress 2022

Distinguished Service Award Assoc Prof Shamira Perera

Outstanding Service in Prevention in Blindness Award Prof Tina Wong

3rd Asia-Pacific Myopia Society (APMS) Congress

APMS International Award Lecture 2022 Prof Saw Seang Mei

Eye And Vision Health Awards 2022

Visionary Award Prof Jodhbir Mehta

Distinguished Service Award Clin Assoc Prof Anna Tan

Elsevier-Stanford Study

Top 2% of Researchers and Adjunct Faculties in Ophthalmology & Optometry 2022

Prof Aung Tin Prof Jodhbir Mehta **Prof Wong Tien Yin Clin Prof Donald Tan** Prof Chee Soon Phaik Prof Cheng Ching-Yu Prof Gemmy Cheung Prof Jonathan Crowston Prof Ecosse Lamoureux Prof Dan Milea Prof Saw Seang Mei Prof Leopold Schmetterer **Prof Louis Tong** Assoc Prof Marcus Ang Assoc Prof Danny Cheung Assoc Prof Audrey Chia Assoc Prof Michael Girard Assoc Prof Liu Yu-Chi Assoc Prof Charumathi Sabanayagam Assoc Prof Gavin Tan Assoc Prof Daniel Ting Adj Assoc Prof Rupesh Agrawal Adj Assoc Prof Chelvin Sng Dr Tham Yih Chung Dr Wong Chee Wai The late Prof Roger Beuerman

College Of Ophthalmologists

College of Ophthalmologists Lectureship 2022 Prof Jodhbir Mehta

Clinician Investigator Advancement Programme

Master Clinical Trialist Development Award Prof Gemmy Cheung

The University Of Sydney

Doctor of Philosophy (Medicine) Dr Kelvin Teo Applauding our colleagues for their exemplary efforts and contributions

AWARDS

National Day Awards 2022

Public Administration Medal (Bronze) Dr Loh Huey Peng

Commendation Medal Priscilla Lim Shiow Huey

Long Service Medal

Clin Assoc Prof Ho Ching Lin Rachel Chua Li Hong Jasmine Gan Lay Choo Lam Bee Chan Jumaiah Bte Mohtar Eileen Neo May Lin Ng Lai Heong Sharon Ong Chua Choo Jess Tan Sock Ting Teong Soh Keng

Efficiency Medal

Candice Ho Ee Hua Koh Siew Kwan Jackson Kwok Chi Shing Raudhah Hanim Binte Mohamed Yusof Linda Ooi Teng Lin Kasi Sandhanam Soh Wee Wee Tian Pei Hong Toh Li Zhen Julia Lily Wong Lee Yun Yeo Sia Wey Jenny Zeng Jiezhen

National Medical Research Council (NMRC)

NMRC Clinician Scientist Award – Senior Investigator Category Prof Tina Wong

NMRC Clinician Scientist Award – Investigator Category Assoc Prof Donny Hoang Dr Shweta Singhal

NMRC HPHSR Clinician Scientist Award – Investigator Category Dr Tham Yih Chung

Nurses' Merit Award 2022 Santhi D/O Perumal

Amei Golden Apple Awards 2022

Generativity Award For Educators Prof Ian Yeo

Singhealth Family Target Zero Harm Award 2022 Hamalatha A/p Vishnu

RISE (Residency In Singhealth Excels) Awards 2022

Inspiring Resident Educator Award Dr Tan Tien-En

Partners-in-Education Award (Non-Physician Faculty) Catherine Ng Lisa Ong Karen Zhang

SNEC PROVIDES EYE TREATMENT FOR THE FULL SPECTRUM OF EYE CONDITIONS:

- Cataract & Comprehensive Ophthalmology
- Corneal & External Eye Disease
- 🔇 Glaucoma
- Medical Retina
- Neuro-ophthalmology
- Ocular Inflammation & Immunology
- Oculoplastic
- Ophthalmic Pathology
- Paediatric Ophthalmology & Adult Strabismus
- Refractive Surgery
- Surgical Retina

CONSULTATION BY APPOINTMENT:

6227 7266 🛛 appointments@snec.com.sg

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www.snec.com.sg

WHERE WE ARE

11 Third Hospital Avenue Singapore 168751 www.snec.com.sg

OPENING HOURS

8:30am to 5:30pm Mondays to Fridays

No clinic sessions on Saturdays, Sundays and Public Holidays

VALET SERVICE

Valet service is available for SNEC patients at \$3.00. Parking charges of \$0.036 per minute (or \$2.16 per hour) applies on top of the valet parking fee.

Operating hours: 7:00am to 5:30pm 1 Mondays to Fridays

GP Hotline: 6322 9399

A dedicated line for GPs attending to patients with eye conditions.

SNEC BRANCHES *and* **AFFILIATED CLINICS**

Central

Singapore National Eye Centre 11 Third Hospital Avenue Singapore 168751 Tel: 6227 7266

SNEC Eye Clinic @ NHCS National Heart Centre Singapore 5 Hospital Drive, Level 4, 4C Singapore 169609 Tel: 6704 8289

3 SNEC Retina Centre Diabetes & Metabolism Centre (DMC), Singapore General Hospital 17 Third Hospital Avenue #02-00 Singapore 168752 Tel: 6421 8500 KK Eye Centre KK Women's and Children's Hospital 100 Bukit Timah Road Level 1, Children's Tower Singapore 229899 Tel: 6394 1930 / 6394 1931

SNEC Community Eye Clinic @ HPB Building 3 Second Hospital Avenue

5

#03-04, Health Promotion Board Building Singapore 168937 Tel: 6322 4584

North East

6 SNEC Eye Clinic @ SKH Sengkang General Hospital Medical Centre, Level 8 110 Sengkang East Way Singapore 544886 Tel: 6930 2802

SNEC Community Eye Clinic @ Punggol Polyclinic Blk 681 Punggol Drive Oasis Terraces, #04-12 Singapore 820681 Tel: 6718 2590

East

8 SNEC Eye Clinic @ Bedok Blk 212 Bedok North Street 1 #03-147 Singapore 460212 Tel: 6843 5001

9 Myopia Centre

Blk 212 Bedok North Street 1 #03-147 Singapore 460212 (Located at SNEC Eye Clinic @ Bedok) Tel: 6227 7255

10 SNEC Eye Clinic @ CGH Changi General Hospital 2 Simei Street 3, Medical Centre, Level 1 Singapore 529889 Tel: 6850 3333

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