

# SING VISION<sup>®</sup>

Tomorrow's Eye Care, Today<sup>®</sup>  
www.snec.com.sg | www.seri.com.sg

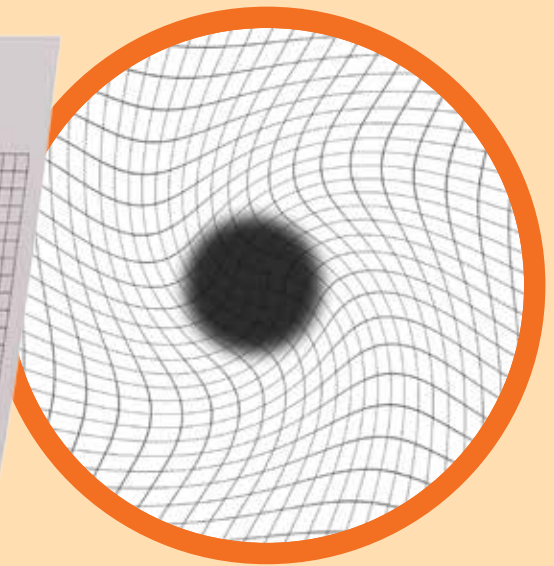
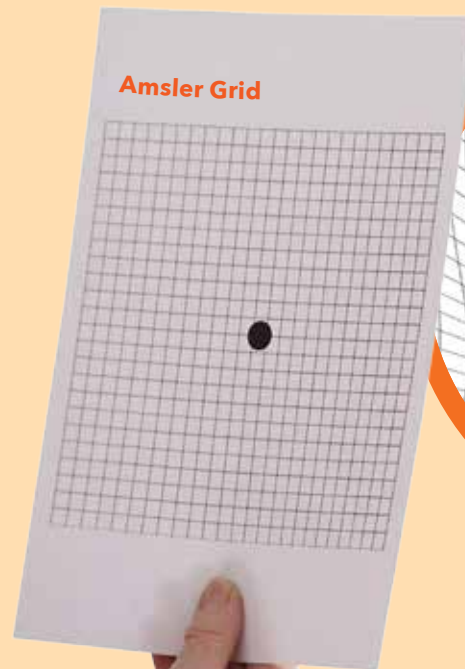
A publication of Singapore National Eye Centre  
& Singapore Eye Research Institute

**AT THE FOREFRONT:**  
SERI AND SNEC  
AWARDED \$24M  
GRANT FOR  
AMD STUDY

**ALL ABOUT EYES:**  
10 THINGS  
YOUR EYES SAY  
ABOUT YOU

**HERE'S  
LOOKING AT:**  
A KEY TEAM OF  
SNEC: OPHTHALMIC  
IMAGING SERVICES

## SCREEN FOR AMD BEFORE IT'S TOO LATE



ISSUE **2/2018**



# Editor's Note

Along with an ageing population comes eye care challenges, including age-related macular degeneration (AMD), a costly condition that can result in loss of central vision and even blindness. In this issue's Cover Story (page 6), SINGVISION speaks with Assoc Prof Ian Yeo, Head & Senior Consultant of the Medical Retina Department at SNEC, to learn all about this sight-threatening disease.

We also shine a spotlight on SNEC's Low Vision Service (page 20), which helps patients with impaired vision improve their quality of life through various rehabilitation methods and tools.

As AMD requires long-term treatment, which adds to the burden of care, VisionSave is on hand to provide financial assistance to patients in need. Read the moving story of our patient Tan Hock Meng on page 24.

For a better understanding of how the VisionSave Mobile Eye Bus (MEB) is travelling into the heartlands for the needy and elderly to gain greater access to eye care, we have illustrated the seamless journey to good vision on page 26. If you suspect something is amiss when you check your eyes in the mirror, you may be right! Symptoms in your eyes could be warnings of more serious health issues. Find out more on page 28.

Also, meet our award-winning Ophthalmic Imaging Services team, which provides a wide range of beneficial services so that patients can be better diagnosed. Uncover the department's crucial role in assisting ophthalmologists to identify, monitor and treat different eye conditions in Here's Looking At (page 32).

Speaking of awards, we are proud to announce that SINGVISION has snagged an esteemed prize – Award of Excellence in the 'Magazines, Journals and Tabloids (Custom-Published)' category – at the 2018 APEX Awards for Publication Excellence!

## The Editorial Team

Like us on:  /@SNEC.SERI

### PUBLISHERS

SINGAPORE NATIONAL EYE CENTRE  
SINGAPORE EYE RESEARCH INSTITUTE

### EDITORS

LEE KAI YIN  
TRICIA TAN

### CONTRIBUTING EXPERTS

ASSOC PROF GEMMY CHEUNG  
ASSOC PROF IAN YEO  
DR DANIEL CHUA  
DR LOO JING LIANG  
DR ANNA TAN  
DR DEBORAH TAN  
JOSEPH HO  
LYNN TAN  
TAN YANWEN

### PUBLISHING AGENT

THINKFARM PTE LTD



**Singapore National Eye Centre is the designated national centre within the public sector healthcare network.**

It spearheads and coordinates the provision of specialised ophthalmological services, with emphasis on quality education and research.

02

## EDITOR'S NOTE

04

## AT THE FOREFRONT

- GonioPen speeds up glaucoma diagnosis
- SERI and SNEC awarded \$24m grant for AMD study

06

## COVER STORY

Screen for AMD before it's too late

12

## SPOTLIGHT

- SNEC, SERI and Beijing Tongren Eye Center join forces to exchange ideas
- Artificial intelligence: a key theme at third APTOS Symposium
- Living well with low vision
- SNEC opens new clinic in Bedok
- Finding hope in a moment of despair
- Eye Screening at Your Doorstep

28

## ALL ABOUT EYES

10 Things Your Eyes Say About You



# Contents

06

30

## Q&amp;A

What's wrong with my eyes, doc?

32

## HERE'S LOOKING AT

A Key Team of SNEC: Ophthalmic Imaging Services

34

## SNAPSHOTS

- Raising Awareness on Vision Rehabilitation

35

## CONGRATULATIONS

- Extraordinary Spirits
- Staff promotions and awards



22

39

## ALL YOU NEED TO KNOW



## GonioPEN speeds up glaucoma diagnosis

SERI and Nanyang Technological University have co-invented a 'pen camera' that is able to detect glaucoma types quicker and better.

**G**laucoma is a leading cause of blindness in the world. In glaucoma, high eye pressure is caused by an imbalance between fluid production and its drainage. About 3% of Singaporeans over the age of 40 have glaucoma, with the percentage rising alongside an ageing population. Half of these people are unaware of their condition, which has no early symptoms.

### Gonioscopy

There are several types of glaucoma. The conventional method of determining glaucoma type is gonioscopy – a handheld lens is pressed against the eyeball to examine the eye's drainage canal through a microscope. Diagnosis must be made on the spot by an ophthalmologist. The process, which takes up to 15 minutes, is not routinely done in clinics, resulting in a large number of undetected cases.

### GonioPEN

The GonioPEN is the brainchild of a team led by Prof Aung Tin, Executive Director of SERI and Deputy Medical Director (Research) of SNEC, and Assoc Prof Murukeshan Vadakke Matham, Director of NTU's Centre for Optical and Laser Engineering. It is able to capture high-resolution images of the eye from four

perspectives with minimal contact at the side of the cornea, causing negligible discomfort.

The GonioPEN requires minimal training and can be operated by a technician, with the process taking only three minutes to complete. As the images are saved via an automated software, an ophthalmologist can retrieve, review and magnify them for accurate diagnosis at any time. Changes in patients' conditions can also be better tracked. Importantly, the device's portability and the increased efficiency that it brings will allow more people to be examined.

Another advantage of the GonioPEN is its cost-effectiveness. The prototype GonioPEN is estimated to cost significantly lesser than other eye imaging equipment, which would translate to lower fees for the patients. With its compactness and integration to electronic medical records, the GonioPEN will enable advancement of tele-ophthalmology and standard of medical care in Singapore in the digital era.

In a recent pilot study by Asst Prof Baskaran Mani from SERI, all 20 patients found the GonioPEN more comfortable than the handheld lens used with a microscope – the gold standard used in clinics now.



From left: Prof Dan Milea, Prof Ecosse Lamoureux, Assoc Prof Yasuo Yanagi, Assoc Prof Caroline Chee (NUH), Assoc Prof Gemmy Cheung and Asst Prof Wang Xiaomeng (NTU). Not in photo: Prof Wong Tien Yin, Prof Cheng Ching-Yu, Prof Leopold Schmetterer, Assoc Prof Colin Tan (TTSH)

## SERI and SNEC awarded \$24m grant for AMD study

This denotes a major milestone and validation of our progress in retinal research over the past decade.

**L**ed by Assoc Prof Gemmy Cheung, a team from SERI, SNEC, NUH, TTSH and NTU was recently awarded the Open Fund-Large Collaborative Grant (OF-LCG) from Ministry of Health's National Medical Research Council (NMRC) to conduct a study on Age-related Macular Degeneration (AMD).

AMD is a major cause of vision loss in people aged 50 and above, with the incidence rate rapidly rising due to the ageing population. Despite progress made with new therapies such as anti-vascular endothelial growth factor (VEGF) agents, significant clinical, public health and research gaps remain in the optimal management of AMD, particularly in Asia.

Titled Translational Asian Age-Related Macular Degeneration Program (TAAP), the study aims to develop AMD treatments that can reduce visual loss or even fully restore vision in affected patients,

as well as innovate clinical approaches that are tailor-made for Asian populations.

This project will adopt a broad-based and interlinked 'bench to bedside to population' approach to address the currently unmet clinical and population needs, with its objectives aligned with industry interest. In addition, the study will provide in-depth longitudinal data of clinical features, risk factors and treatment responses of AMD in Asians, allowing unique insights into pathogenesis (origination and development of a disease) and discovery of novel biomarkers.

Highly commended by the international reviewers awarding the grant, the comprehensive TAAP is poised to make important strides in preventing AMD-related blindness in Singapore and across the globe.

# Screen for AMD before it's too late

A leading cause of blindness among people aged 50 and above, Age-related Macular Degeneration is a chronic condition that affects many areas of a patient's life.



Assoc Prof Ian Yeo

**W**hen the elderly experience changes in their vision – such as straight lines appearing wavy – these abnormalities are often dismissed as a “sign of ageing”. Consequently, conditions such as Age-related Macular Degeneration (AMD) may remain undetected until irreversible damage has been done.

As Singapore’s ageing population grows, it has become even more critical to recognise the severity of AMD, its symptoms and risk factors, and treatment methods. SINGVISION speaks to Assoc Prof Ian Yeo, Head & Senior Consultant of the Medical Retina Department and Deputy Medical Director (Education) at SNEC, to learn about this disease.

### WHAT IS AMD?

AMD causes damage to the central 0.5mm of the retina, which is called the macula or fovea. This part of the eye gives us the ability to read, recognise faces and colours, and more. Peripheral vision remains intact in most patients. AMD can occur in ‘dry’ (early) and ‘wet’ (late) forms.

### Dry AMD

About 90% of AMD patients suffer from this. Over time, light-sensitive cells in the macula slowly degenerate due to wear and tear, resulting in progressive loss of central vision. People with dry AMD can still see well. Changes in the eye, such as drusens (white lipid deposits under the retina) can only be picked up during an eye examination.

### Wet AMD

Also known as exudative or neovascular AMD, it is caused by the growth of small, abnormal blood vessels that tend to leak blood and fluid, disrupting the structure of the retina. Left untreated, scar tissues form under the macula and central vision is permanently destroyed. Wet AMD usually arises from pre-existing dry AMD and results in advanced visual loss within a short period of time.

### DO YOU HAVE AMD?

By the age of 40, you should start going for eye screening periodically, even if you do not show symptoms. The frequency of screening should increase with age and is dependent on your family history. Patients at risk (those with a positive family history) need to observe changes in their vision, as they are more susceptible to AMD, the onset tends to be earlier, and it usually

affects both eyes. See an ophthalmologist promptly if you start experiencing distorted vision.

The earlier AMD is discovered, the smaller the damage and the lesser the amount of intervention is required. Early detection of conversion to wet AMD is also

*“The earlier AMD is discovered, the smaller the damage and the lesser amount of intervention is required.”*



### WATCH OUT!

In early AMD, symptoms are generally mild or even non-existent. However, as the disease progresses, the following symptoms may present:

- Blurring of central vision
- Shadows or missing areas of vision
- Distorted vision
- Problems discerning colours
- Slow recovery of visual function after exposure to bright light
- Loss of contrast sensitivity (ability to differentiate levels of brightness)

important for better preservation of vision. Once a person is suspected or detected to have AMD, he or she needs to undergo a comprehensive eye examination for diagnosis and monitoring of condition. The tests may include:

- **Amsler grid**

If lines in the grid appear wavy or fuzzy, or if certain squares look blurry, you may be suffering from AMD. This is a simple test that can be done at home.

- **Fundus Fluorescein Angiogram (FFA) and Indocyanine Green Angiogram (ICG)**

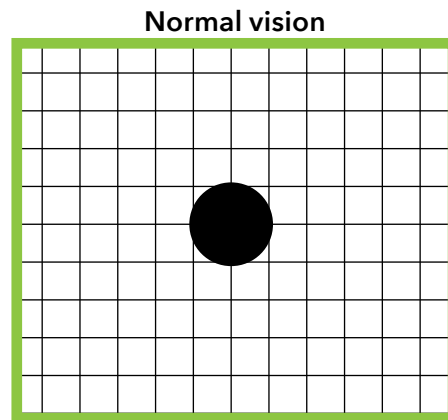
A fluorescent dye is injected into a vein in your arm. Images are taken as the dye passes through the blood vessels in your eye to detect leaking blood vessels, which occur in wet AMD.

- **Optical Coherence Tomography (OCT)**

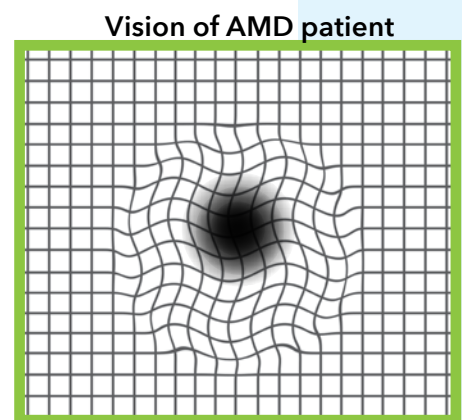
After your eyes are dilated, you will be asked to place your head on a chinrest and hold still for several seconds while high-resolution, cross-sectional images of your eyes are obtained via a painless light beam.

### INJECT LIFE INTO YOUR EYES

Although dry AMD is more common, there is no known treatment for it. In wet AMD, long-term treatment is required to adequately control the condition, which is often recurrent. Currently,



*Amsler grid*



the most common treatment is intravitreal injection of anti-VEGF (vascular endothelial growth factor) drugs. A needle is used to inject the drug directly into the white part of the eye beside the cornea. It is done as an outpatient procedure on a monthly basis.

Other treatment options include cold laser therapy and a combination of anti-VEGF injections and laser therapy. While treatment can stabilise vision, the choice of drugs and degree of improvement depend on when the condition was diagnosed, size of damage and subtypes of AMD (e.g. polypoidal choroidal vasculopathy or PCV), as well as the response to initial treatment.

It is important to note that both the injection process and drugs are generally safe, but they are not risk-free. "Because it is an

invasive and repeated procedure, you may worry about damaging the eye, infection and retinal detachment. Also, the drugs have been reported to cause strokes, heart attacks, and hypertensive episodes. However, the risk of these complications is less than 1%," says Assoc Prof Yeo.

In 2017, 14,000 anti-VEGF injections were done at SNEC, which is almost double the number of injections given in 2007. This year, the figure is estimated to rise to 17,000, and more patients are expected to require this treatment in the near future. In fact, anti-VEGF injections have replaced cataract surgery as the single most common procedure in the whole of the SingHealth group.

While effective, anti-VEGF treatment can cost from a few hundred dollars to more than a thousand dollars. In Assoc Prof

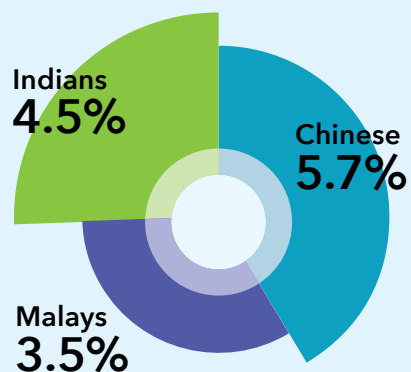


# Facts & Figures

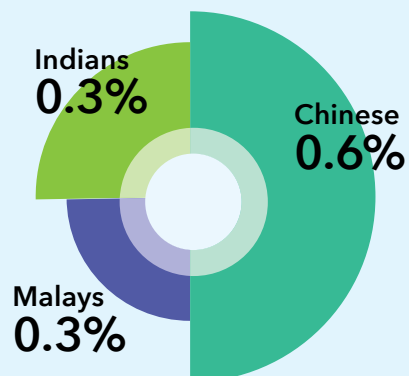


## AGE-STANDARDISED PREVALENCE OF AMD IN SINGAPORE

### EARLY AMD IN



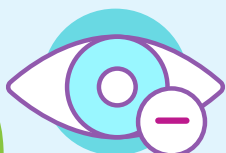
### LATE AMD IN



PREVALENCE OF ANY AMD IN THOSE AGED 65 AND ABOVE: **14%**

Average age of onset

**Above 50**



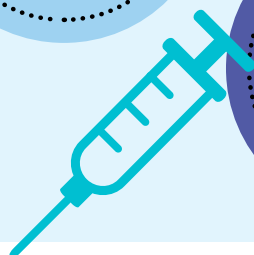
Of those blind in both eyes, **5% have AMD**

Estimated number of anti-VEGF injections performed in SNEC in 2018

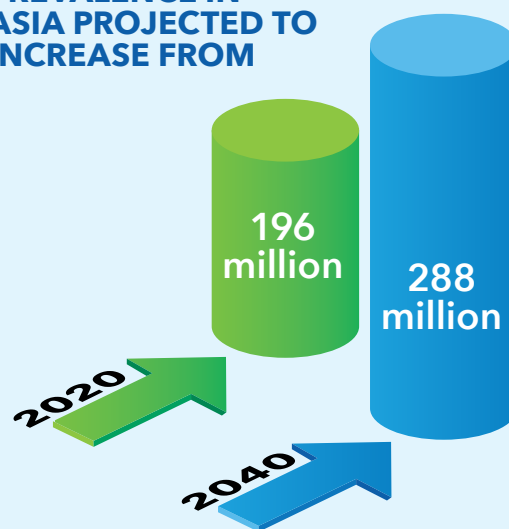
**17,000**

Number of anti-VEGF injections performed in SNEC in 2017

**14,000**



## PREVALENCE IN ASIA PROJECTED TO INCREASE FROM

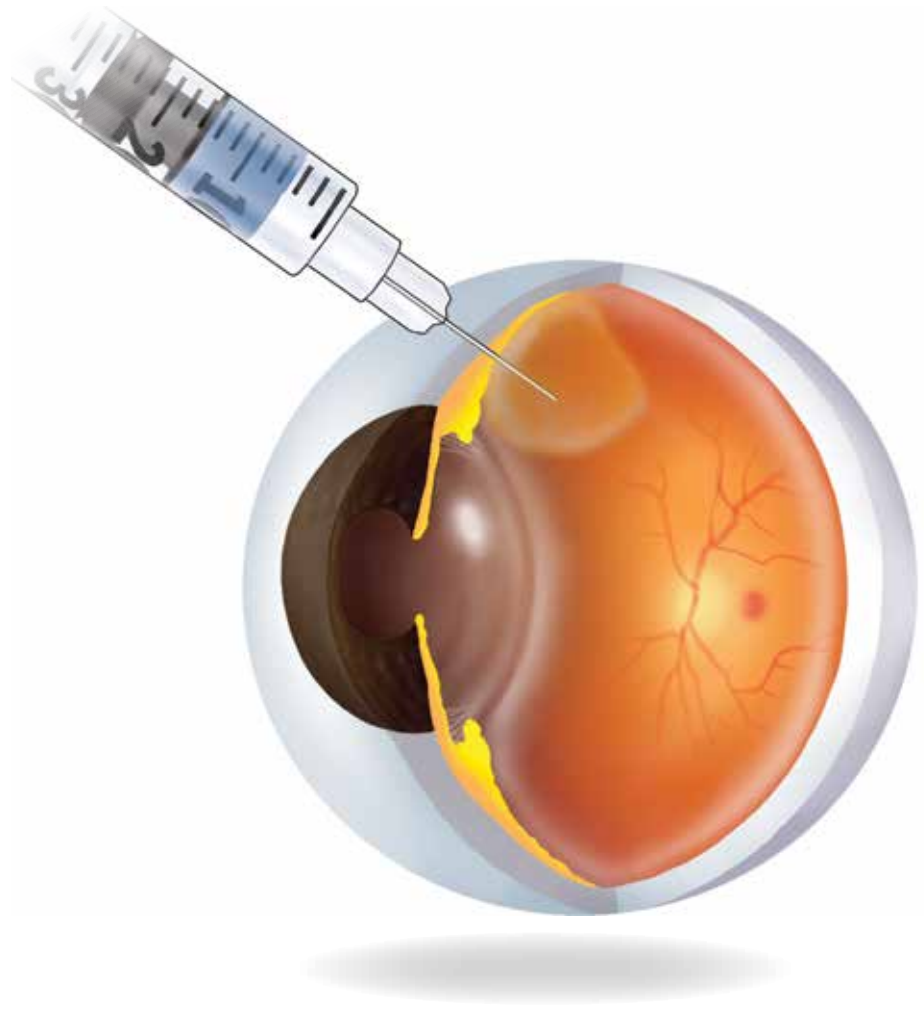


Yeo's words, AMD is a costly disease. The burden of care is huge not only in the physical and emotional aspects, but repeated treatments also put a strain on the patient's finances. This is also why early detection is crucial. In light of this, SNEC has provided financial assistance to some of our patients through VisionSave [see page 24].

### **ENHANCING CARE, IMPROVING LIVES**

To improve the efficiency of care delivery and benefit patients directly, SNEC constantly makes efforts to upskill our nursing and allied health staff. One such initiative is structured training programmes for nurses to take over some of the ophthalmologist's work. In this way, nurses evolve into physician extenders.

With the help of gifts from DS Lee Foundation totalling S\$75,000, SNEC is currently building capacity by training nurses to administer eye injections. The gifts also enable the establishment of bursaries for selected SNEC nurses to attend a course on basic eye examinations and common conditions, such as glaucoma, AMD and diabetic retinopathy to provide better care and more effective patient education. With the graduate certificate, nurses can further their knowledge and studies by pursuing a Diploma, Master's degree or even PhD in nursing.



"In the United States (US) and Europe, where AMD is much more common, they have moved towards having professional nurses do the anti-VEGF injections. Here, we are doing the same thing. Our nurses are given one-to-one training, so they become highly skilled. I reassure patients that the nurses would have had a few hundred times of hands-on practices before they go solo. The fact is that the procedure itself is not complex. Some patients would even rather have the nurses do it for them!" explains Assoc Prof Yeo, who is also the trainer for this programme.

Chitra Vallei d/o Govindasamy, Assistant Director of Nursing at SNEC, also recognises the positive impact of the upskilling programme. "Currently, our doctors handle the intravitreal injections while running clinics with high patient volume. Armed with these new skills, our trained nurses are able to perform the injections so that the doctors can devote their time to seeing other patients in their clinics. More importantly, patients who need these injections will have shorter waiting times," she adds.

To provide holistic, evidence-based treatment, research on all aspects of AMD – from

basic science to experimental and clinical research, including studies on new anti-VEGF agents, stem cells and genetic therapy – is extensively conducted at SERI. We are also one of the few eye centres outside the US to offer the Argus implant (also known as bionic eye).

### ALL IS NOT LOST

There are ways to optimise the patient's eyesight and minimise the visual handicap so that he or she can continue to lead a fruitful life, even if the condition is beyond treatment.

Through our Low Vision Service and Seniors' Eye Rehabilitation

Programme (SEER) [see page 20], patients are advised on ways to cope with vision loss and utilise their remaining vision, as well as improve their quality of life with the help of low vision aids.

SNEC is the only institution in Singapore that provides a vision rehabilitation programme. With guidance from fully trained clinicians and staff who are motivated to help, the patients are encouraged to overcome their challenges with positivity. "We treat our patients as people, not diseases. Showing empathy is key in communication," Assoc Prof Yeo reiterates.

*Anti-VEGF injections have replaced cataract surgery as the single most common procedure in the whole of the SingHealth group.*



### ARE YOU AT RISK?

Raise the alarm if you tick any of the boxes below:

- **AGE**  
50 years and above. Patients who develop AMD below the age of 50 are usually those with very significant family history
- **GENDER**  
Women are more prone to AMD
- **OBESITY**  
High-fat diet and sedentary lifestyle
- **SMOKING**  
Smokers are four times more likely to develop wet AMD than non-smokers
- **HYPERTENSION**
- **HYPEROPIA** (farsightedness)

Reduce the risk of AMD or slow its progression in high-risk eyes by quitting smoking, avoiding cigarette smoke, maintaining a healthy weight, keeping blood pressure under control, and having a balanced diet.



*Dr Daniel Ting, Organising Chairman, SNEC & SERI - Beijing Tongren Eye Center Summit 2018, giving his welcome speech on the cordial tripartite relationship between SNEC, SERI and Beijing Tongren Eye Center*

## SNEC, SERI and Beijing Tongren Eye Center join forces to exchange ideas

Based on the theme 'Eye to the Future: Current and Next Advances in Ophthalmology', the event was held at the Academia on 6 July.

Following the inaugural summit in China last August, SNEC and SERI this year hosted 22 delegates from Beijing Tongren (BTR) Eye Center, including many senior management and several young faculties, as well as 48 speakers from various departments.

The young organising committee from SNEC and SERI spent a year planning for the momentous event, which saw the exchange of important ideas and knowledge pertaining to the present state and future developments of the eye care industry.

One key highlight of the Summit was the conferment of Kwan Im Thong Hood Cho Temple Professorship to Prof Aung Tin, Executive Director of SERI, in the presence of Duke-NUS' Dean Prof Thomas Coffman, the BTR team, and SNEC-SERI Philanthropy



*Prof Wang Ningli, Director of Beijing Tongren Eye Center, giving the plenary lecture on "The Impact of Trans-Laminar Cribosa Pressure Difference on Blood Vessels"*

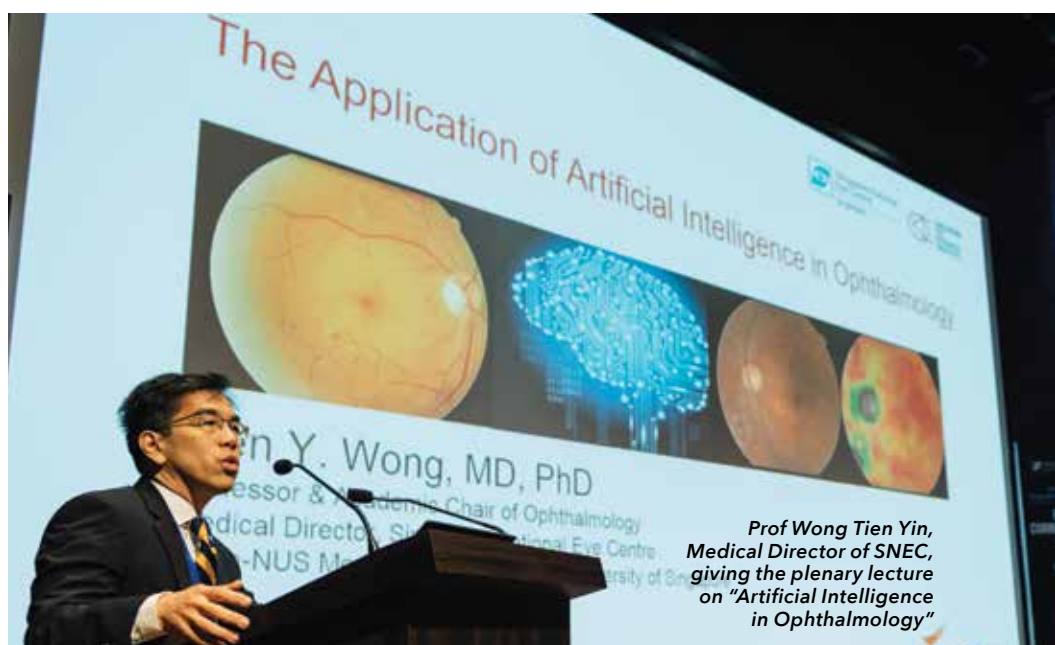
board members. Prof Aung's family was also present to witness the meaningful moment.

The Professorship was made possible by a generous gift of S\$3 million by Kwan Im Thong Hood Cho Temple and a matching donation from the government. The Professorship honours an eminent individual who has contributed significantly to clinical innovation and research. It supports the pursuit of groundbreaking work, with the goal of providing best-in-class eye care for patients.

In the citation by Assoc Prof Shamira Perera, Prof Aung was celebrated as a role model for clinicians for his bravery in pushing boundaries and epitomising the qualities inscribed by the Professorship. Prof Coffman and Prof Wong Tien Yin, Medical Director of SNEC, also paid tribute to Prof Aung's visionary leadership, dedication to ophthalmology and visual



*Beijing Tongren Eye Center invited faculties commemorating the Summit by posing for a group photo*



*Prof Wong Tien Yin, Medical Director of SNEC, giving the plenary lecture on "Artificial Intelligence in Ophthalmology"*



*Prof Aung Tin receiving the Kwan Im Thong Hood Cho Professorship from Prof Thomas Coffman, Dean, Duke-NUS Medical School, and Prof Wong*



Panel of speakers discussing topics related to paediatric ophthalmology



Prof Wang presenting a Chinese calligraphy scroll, which illustrates the virtuous collaboration between Beijing Tongren Eye Center and SNEC for the benefit of the people, to Prof Aung



Esteemed guests seated among the audience



(Above and above right) The event was made possible by the organising committee consisting of medical, nursing, research and administrative staff

sciences, and contributions to clinical research, particularly in the area of angle-closure glaucoma, which has propelled SERI to a leading position in Asia-Pacific.

On stage to receive the prestigious award, Prof Aung recounted his journey in the medical field and thanked his teachers, mentors, colleagues, collaborators, and loved ones for their constant support. "To my juniors, have a clear vision for your future; dream big, stay curious, and always live from your heart," he affirmed.



*(Clockwise from top)  
A dinner for SNEC, SERI  
and Beijing Tongren  
Eye Center's faculties  
to celebrate a  
successful event*



# Artificial intelligence: a key theme at APTOS Symposium

Held over two days at the Academia, the third Asia Pacific Tele-Ophthalmology Society (APTOS) Symposium was attended by more than 300 delegates from 30 countries.



*Ms Charity Wai, Chief Operating Officer, SNEC, Prof He Mingguang, Council President, APTOS, Prof Wong Tien Yin, Medical Director, SNEC and Dr Gavin Tan, Congress President, 3rd APTOS Symposium receiving Dr Vivian Balakrishnan (centre), Minister for Foreign Affairs and Minister-in-Charge of the Smart Nation initiative, who made a guest appearance at the event*

**T**hemed 'Big Data Analytics and Artificial Intelligence Evolution in Ophthalmology', the APTOS Symposium was successfully conducted on 7 and 8 July. It not only covered tele-ophthalmology, but also exciting topics that address future challenges of eye care, such as new models of care, big data analytics, artificial intelligence (AI) and machine learning.

The line-up of speakers comprised experts and key opinion leaders from international academic and eye institutes, including Stanford University, Columbia University Medical Center, and Johns Hopkins University, as well as invited guests from Google and more. Dr Vivian Balakrishnan, Minister for Foreign Affairs and Minister-in-Charge of the Smart



*The Symposium presented a special opportunity for Dr Balakrishnan and the guests to interact*





*The event offered a great platform for participants to mingle and exchange ideas*



*One of the panels in active discussion on AI in tele-ophthalmology*

Nation initiative, also made a special appearance at the event.

Another highlight of the Symposium was the presentation of the Richard Fan Distinguished Lectureship to Prof He Mingguang, Professor of Ophthalmic Epidemiology at the University of Melbourne and Centre for Eye Research Australia, and Council President of APTOS.

A founding member of SNEC's Board of Directors and Medical Board, Dr Richard Fan has played an integral part in the development of the institution, and mentored and inspired a generation of ophthalmologists in Singapore. The Lectureship is awarded annually to outstanding



*Dr Gavin Tan speaking on how cutting-edge technology is changing tele-ophthalmology and the ophthalmology field in his welcome address*



*Prof He (centre) receiving the Richard Fan Distinguished Lectureship from Dr Richard Fan and Prof Wong*



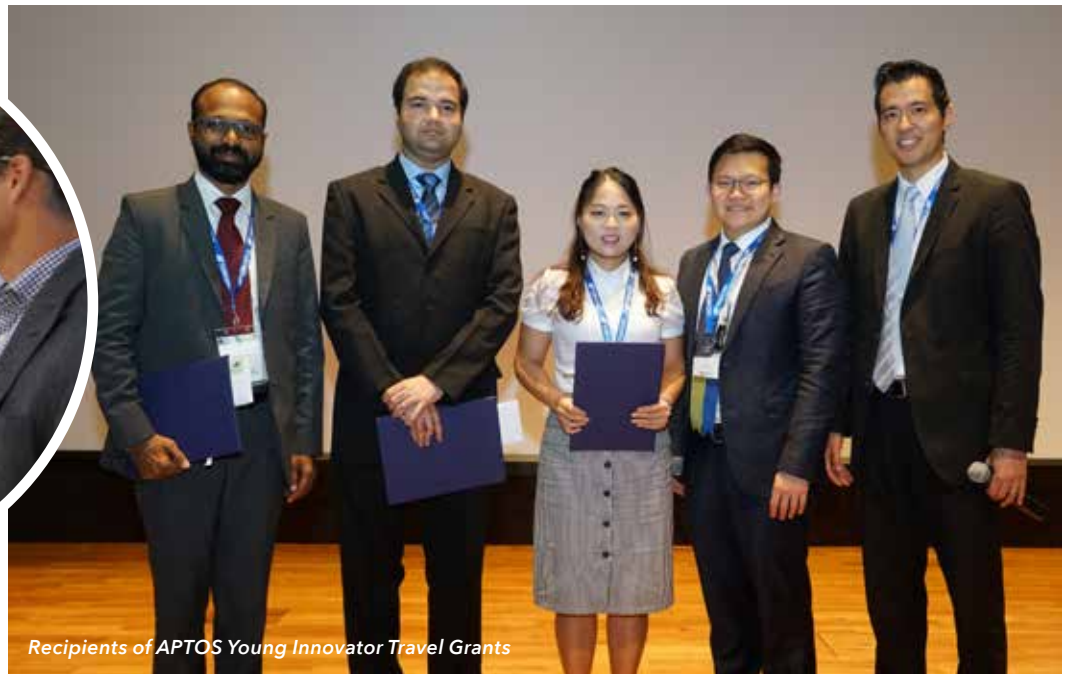
*Prof Leopold Schmetterer, Scientific Director & Head of Ocular Imaging, SERI, speaking on AI in Glaucoma*



*Panel of speakers in discussion*



*(Top left and above)  
Participants networking  
during break time*



*Recipients of APTOS Young Innovator Travel Grants*



*A trade exhibition focusing on AI was held in conjunction with the Symposium*

and world-renowned academics in the field of ophthalmology and visual sciences.

Having conducted numerous clinical trials and epidemiological studies, Prof He has published close to 280 papers in international peer-reviewed journals, such as *The Journal of the American Medical Association (JAMA)*, and currently holds 17 patents – just to name a few of his achievements. His far-reaching contributions to the industry make him a worthy recipient of this honoured accolade.



*Handover ceremony from the organising committee of APTOS 2018 to the committee for 2019*



*Abstracts in digital format were showcased at the Symposium via interactive screens located around the venue*



*Delegates from around the world engaging in conversation*



*A series of breakout sessions concurrently running over the two-day event*



*An AI workshop attended by more than 40 participants*

# Living well with low vision

Losing vision does not mean giving up your activities, but doing them in new ways with the help of visual aids.

Low vision is partial visual impairment that cannot be corrected by surgery, medication or regular glasses. In Singapore, a study examining visual impairment rates in a population aged between 40 and 80 years

old estimated that 0.7% to 1.8% are affected by severe visual impairment in both eyes, while 20.7% to 24.1% are affected by mild to moderate vision loss in at least one eye.

A person with low vision may experience reduced visual acuity, decreased contrast sensitivity, obstructed visual field and diminished independence. This could impact him or her emotionally, and increase the risk of falls and injuries.

## HELP AT HAND

People with low vision have residual useful vision that can be utilised to enhance their quality of life. With SNEC's Low Vision Service, patients can benefit from a holistic range of



- 1 Video magnifier
- 2 Large print book
- 3,5-7 Handheld magnifiers
- 4 Telescope

services to meet their eye care needs, and keep them independent and socially engaged.

One rehabilitation care model for low vision patients is the Seniors' Eye Rehabilitation Programme (SEER) [see sidebar]. Under this programme, optometrists assess the patients' vision function, as well as prescribe and train them on the use of optical aids to raise their reading ability and enable them to perform simple tasks on their own. These low vision aids include stand and handheld magnifiers, loupes, small telescopes, and tinted glasses.

Besides conducting more in-depth training on the use of low vision aids, occupational therapists from Singapore General Hospital (SGH) also introduce digital devices like talking clocks and beeping mugs, as well as mobile and online resources such as accessibility functions on smartphones and audiobooks that improve the activities of daily living. In addition, social workers at SNEC provide counselling for patients and caregivers, information on organisations that help with job placement, and referrals to other agencies that cater to the visually impaired.

Other vision rehabilitation services available include kitchen mock-ups to educate patients on using devices to help them become more independent at home. Home visits for housing modifications and training of patients in a familiar environment can also be arranged.

Mr Ng, 75, a patient with Age-related Macular Degeneration (AMD), has benefitted from SNEC's Low Vision Service. Although he loves karaoke, he had difficulty reading the lyrics on the screen. After a refraction test, he was given a new spectacle prescription that improved his distance vision. To overcome the challenge of reading the newspapers, his optometrist recommended and trained him to use a handheld magnifier, and advised him on the suitable type of lighting for reading. And to help him see better in the sun, the optometrist suggested using brown-tint clip-on sunglasses to reduce glare. Since then, the patient's vision has remained stable and is enjoying an enhanced quality of life.

---

**SNEC LOW  
VISION  
SERVICE**  
SNEC  
Clinic D,  
Room 12A

**Diabetes and  
Metabolism  
Centre**  
Level 2,  
Retina Centre

---



## SENIORS' EYE REHABILITATION PROGRAMME (SEER)

The SEER programme is a subsidised, multidisciplinary rehabilitation service that helps patients with low vision perform day-to-day activities safely and confidently. You may be eligible for this programme if you have a SNEC doctor's referral, and are aged 50 years and above.

### HOW SEER IS CARRIED OUT

- The optometrist assesses the patient's vision function and prescribes optical aids.
- The case manager addresses the patient's psychosocial adjustment to vision loss, and provides information on financial assistance and community resources.
- SGH occupational therapist sees the patient in the clinic for one session.
- Occupational therapists in the community (NGOs) conduct up to four home therapy sessions, where they help the patient function better at home and in the community, and offer guidance to the caregivers.

If you are interested or think your loved ones may benefit from this programme, contact our case manager at 6322 8304 for more details.



## SNEC opens new clinic in Bedok

The new SNEC Eye Clinic @ Bedok offers quality and comprehensive eye care for those living in Bedok as well as other districts located in eastern Singapore.

**S**taying true to its commitment to provide accessible eye care for all, SNEC has opened another branch, this time in Bedok. It will be able to serve people

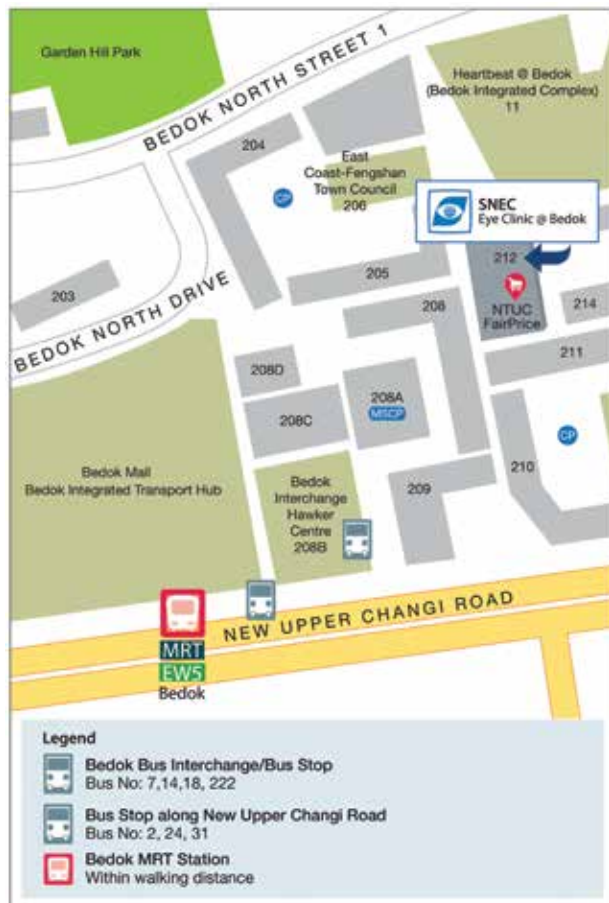
living in eastern Singapore, in districts such as Bedok, Simei, Tampines and Marine Parade.

Managed by ophthalmology specialists from SNEC,

this clinic provides an array of services, including outpatient management of common eye conditions, such as cataracts, glaucoma and diabetic eye disease. These services are supported

by an extensive and comprehensive suite of investigative and diagnostic equipment, as well as ophthalmic laser machines.

Early diagnosis and treatment is vital for achieving the best possible outcomes for our patients, which is why we are pushing out our services to the community. Complex eye conditions may still be referred to SNEC Main Centre at SGH Campus for advanced subspecialty care.



### SERVICES AVAILABLE

- Outpatient management of cataract, glaucoma, diabetic eye disease
- Investigative and diagnostic services
- Ophthalmic laser procedures
- Optometry services



### MAKE AN APPOINTMENT

SNEC Eye Clinic @ Bedok  
Blk 212 Bedok North Street 1  
#03-147, Singapore 460212

**Main appointment line:** 6227 7266

**Email:** [appointments@sneec.com.sg](mailto:appointments@sneec.com.sg)

# Finding hope in a moment of despair

VisionSave provided financial aid to SNEC patient Tan Hock Meng, which gave him the opportunity to receive optimal treatment despite his difficulties.



**A**bout one and a half years ago, Tan Hock Meng's vision in his right eye suddenly turned black and white while watching television, and straight lines started to appear wavy. Although his left eye was unaffected, his younger sister Vivian persuaded him to go for a check-up. After an eye examination, he was diagnosed with Age-related Macular Degeneration (AMD).

Hock Meng's ophthalmologist advised him to begin treatment as soon as possible to prevent the condition from worsening. "I was worried that I would go blind," Hock Meng shares.

As lower-priced treatment options have limited efficacy,

Hock Meng was recommended to go for the more effective but pricier treatment methods – anti-VEGF (vascular endothelial growth factor) injections and low-level laser therapy – that amounted to a few thousand dollars. Due to the Medisave withdrawal limit, he would have to pay the remainder in cash – a tall order for someone with little to no income.

Despite his failing eyesight, Hock Meng, who is single and lives alone, refused to ask for handouts and was determined to find ad hoc work or casual labour. However, his eye condition and other health problems proved challenging to secure a job. "I cannot afford treatment as I have no income. I used to work part-time, but after I

“  
I cannot afford treatment as I have no income. I used to work part-time, but after I was detected to have AMD, I couldn't find any work.”



was detected to have AMD, I couldn't find any work," he says.

Seeking help from his family is not feasible either, as his siblings are struggling with their own predicaments. Vivian is caring for another sister who suffers from dementia, while their elder sister requires financial assistance to look

after her husband, who has been bedridden for years.

Just as he was about to settle for the more affordable but less effective treatment, Hock Meng was referred to a social worker, who informed him about VisionSave. His application was successful, and the funds managed to cover one session

of low-level laser therapy and six months of anti-VEGF injections.

Since then, his colour vision has been restored significantly. Hock Meng is very thankful for the timely help rendered by VisionSave. "I hope that more people would support VisionSave so that more patients like me can receive treatment," he urges.

### SAVE SIGHT, CHANGE LIVES

VisionSave is a fundraising campaign by SNEC and SERI to holistically enhance eye care with the ultimate goal of saving, restoring and protecting our patients' vision. Since its inauguration, VisionSave has continuously pursued efforts to raise awareness of eye conditions, and support the development of preventative and treatment strategies. Your contribution goes a long way in improving the quality of life for needy patients and building a brighter future for eye care.

**Share our Vision and support us. Learn more from us at**

**Tel:** (65) 6322 4541

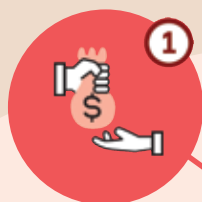
**Email:** [visionsave@sneec.com.sg](mailto:visionsave@sneec.com.sg)

**Website:** [www.visionsave.sg/donate](http://www.visionsave.sg/donate)



**Provide financial assistance**

for needy patients with sight-threatening diseases



**Educate people** in the area of saving sight



**Develop long-term understanding** of eye diseases and solutions

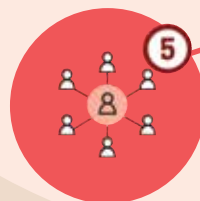


**Support research and innovation**

in the field of ophthalmology



**Build strong infrastructure** and invest in capacity building



**VISIONSAVE**  
supports five focus areas



# Eye Screening at Your Doorstep

SNEC partners Temasek Foundation Cares and the Ministry of Health (MOH) to bring eye screening to seniors via the VisionSave Mobile Eye Bus (MEB).

**V**isual impairment (VI) is a major public health concern that places a heavy burden on an individual and the society. Our recent research has shown this burden to be three times higher in older Singaporeans compared to middle-aged adults. An individual's residential area and socioeconomic status are also revealed to be important determinants of VI. Many seniors are unable or unwilling to seek medical attention due to frailty, immobility, and lack of social support and money, among other reasons.

The MOH and Health Promotion Board (HPB) have rolled out a functional screening programme – check-ups to detect age-related decline of a person's functional ability – across the island. With sponsorships from Temasek Foundation Cares, Ascendas-Singbridge Gives Foundation, PSA Corporation Ltd, SP Group, ST Engineering, and CapitaLand Hope Foundation, the MEB has taken on the needed follow-up from basic eye screening, bringing this service directly into the heartlands.

Eye screening on board the MEB encompasses checking of far vision, slit lamp examination, testing of eye pressure, and more. The elderly are also screened for five common eye conditions, namely cataract, glaucoma, macular degeneration, diabetic retinopathy, and refractive errors. As at end July 2018, 228 seniors have been screened, and 113 people have been referred for further consultation and treatment.

To bring greater benefit to seniors, we welcome collaboration opportunities to organise grassroots or community screening. Interested parties may email to [visionsave@sneec.com.sg](mailto:visionsave@sneec.com.sg).



1

**Assessing and obtaining consent to undergo eye screening**



**The bus is installed with a hydraulic lift to help wheelchair-bound elderly access the mobile eye bus**



**2** Checking of far vision



**3** Conducting slit lamp examination

**4** Checking of intraocular pressure after slit lamp examination, if required



**5** Processing referral if patient is found to have eye abnormalities and requires further assessment

**END**

## PAST SCREENINGS

**Jan  
2018**

**Tanjong Pagar GRC**  
Screened: 45  
Referred: 11

**Mar  
2018**

**Conducting Tele-ophthalmology Test with MOH**  
Screened: 36  
Referred: 18

**May  
2018**

**St Luke's Day Care**  
Screened: 23  
Referred: 16

**Jun  
2018**

**Tanjong Pagar-Tiong Bahru GRC  
PacHealth SAC**  
Screened: 93  
Referred: 52

**Jul  
2018**

**Kreta Ayer-Kim Seng GRC  
Tanjong Pagar-Tiong Bahru GRC**  
Screened: 31  
Referred: 16

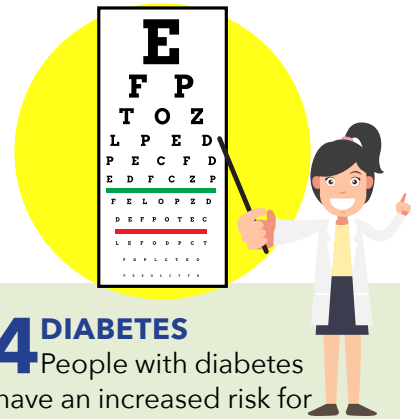
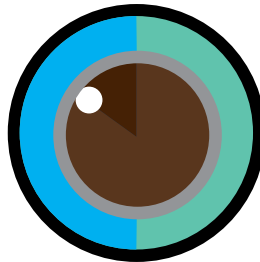
Check out our regular updates on our Facebook at @SNEC.SERI

# 10 Things Your Eyes Say About You

If you experience any of the following changes in your vision, beware as they could be warning signs of more serious eye or health problems.

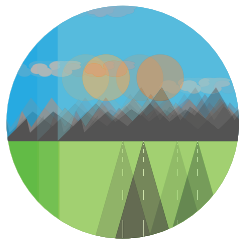
## 1 HIGH CHOLESTEROL

If a grey or white ring appears around the cornea, take note. This arc or ring, called the arcus senilis, is caused by fat deposits and can signify high cholesterol or high triglycerides. For younger people in particular, the appearance of this ring may be reason to see a doctor.



## 4 DIABETES

People with diabetes have an increased risk for eye problems. Diabetic retinopathy affects the circulatory system of the eye, which leads to blurred vision. Laser treatments and medications may be required when vision is affected, and surgery may be necessary in severe cases. Go for routine dilated eye examinations to monitor your condition so as to prevent serious vision problems.



## 2 STROKE

If you experience sudden double vision, dim vision or loss of vision, seek medical attention immediately. These are all possible warning signs of a stroke.



## 3 ALLERGY

If your eyes seem particularly irritated, or become red, itchy and watery every time you are around smoke, pollen or pet dander, they could be alerting you to potential allergies you might have.

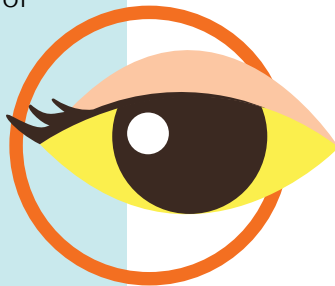


## 5 HYPERTHYROIDISM

If you feel a bulging sensation in your eyes, it could be related to your thyroid. The most common cause of protruding eyes is an overactive thyroid gland, also known as hyperthyroidism.

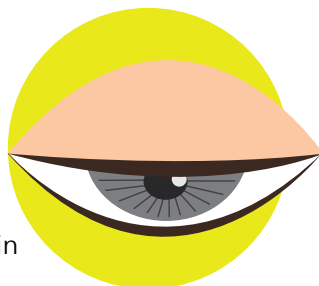
## 10 LIVER DISEASE

Yellow eyes are one of the first signs of liver disease. Jaundice presents as yellowing of the skin or whites of the eyes caused by increased amounts of bilirubin (a by-product of the natural breakdown of red blood cells) in the blood. This condition is common in newborns, as their livers are not fully developed. But when yellowing of the whites occurs in adults, it could spell a liver, gallbladder or bile duct problem. Visit a doctor for advice on improving your liver function.



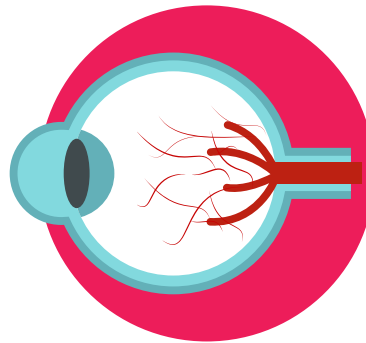
## 9 AUTOIMMUNE DISEASE

For many people, drooping eyelids are a sign of fatigue or ageing. If one or both eyelids droop on and off, you could be suffering from an autoimmune neuromuscular disease called myasthenia gravis. The condition results in an overall loss of strength in the skeletal muscles.



## 6 CATARACT

If you notice that colours no longer appear as vibrant as they used to – and appear faded and dull instead – it could be a sign of cataracts. Make an appointment with your ophthalmologist to have your cataracts removed when vision loss interferes with daily activities such as driving, reading or watching TV.

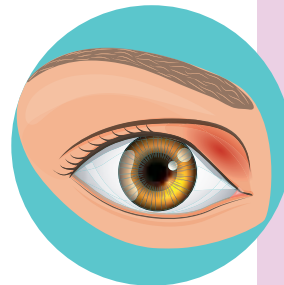


## 7 HIGH BLOOD PRESSURE

Although high blood pressure generally has no symptoms, it can be detected through changes in the retina's tiny blood vessels. Hypertension can cause these blood vessels to narrow or balloon, signalling problems with bigger vessels that supply blood to the heart, brain and kidneys. Identifying and managing high blood pressure can help prevent heart disease or stroke.

## 8 CANCER

A stye is a small, painful lump that appears on the inside or outside of your eyelid. It can disappear as quickly as it appears. Styes are caused by bacterial infection and most of them go away within a few days. However, if the stye persists for more than three months, it could be an indication of something more sinister, such as sebaceous gland carcinoma, a rare cancer that manifests as a stye repeatedly appearing in the same location.



# What's wrong with my eyes, doc?

**After a recent fall, I have been having double vision. It worsens after a day at work. Should I visit an ophthalmologist?**

Diplopia (double vision) is a symptom whereby a patient sees two images of one object. It can occur in one eye (monocular diplopia) or both eyes (binocular diplopia).

Causes of monocular diplopia include uncorrected refractive errors, corneal disorders, cataracts and retinal disorders.

Binocular diplopia may arise from disorders affecting:

## **Nerves**

Cranial nerves originating from the brain stimulate the eye muscles to function properly. If there is a problem with these nerves, specifically the 3rd, 4th and 6th cranial nerves, the eye will not be able to move fully in a particular direction, resulting in double vision from

misalignment of the eyes. Examples of conditions affecting the cranial nerves are brain tumours pressing on the nerves and stroke of the nerves (ischaemic nerve palsy).

## **Muscles**

Diseases affecting muscles that move the eye can lead to double vision. These include thyroid eye disease and inherited muscle diseases. The eye muscles become enlarged and stiff, and do not work normally.

## **Nerve-muscle junctions**

Myasthenia gravis is an immune system disorder in which antibodies attack different nerve-muscle junctions in the body. If the eyelid or eye muscles are affected, patients may develop droopy lids and/or double vision. Symptoms are usually better on waking up or after a period of rest, and worsen throughout the day.

## **Bones surrounding the eye**

The eyes are enclosed in a bony compartment in the skull called the orbit. Injuries that break the bones of the orbit can cause tissues (such as fat and eye muscle) to be trapped in the fracture, leading to double vision. Diseases within the orbit, such as tumours and infection, can displace the eyeball and cause symptoms of diplopia.

After a fall with head injury, the 4th cranial nerve is easily traumatised. This may cause one of the eyes to move less well than the other, resulting in diplopia. Your ophthalmologist will need to perform a thorough eye examination to diagnose this. A brain scan may also be requested to ensure that there are no other lesions in the brain, such as injury to other parts of the brain or tumours. There is a chance for spontaneous recovery in traumatic 4th nerve palsy. In cases where there is incomplete recovery after a suitable time of observation, residual diplopia may be alleviated by prism glasses or squint surgery.



## My child has difficulty distinguishing between red and green. How do we confirm if he is colour blind? In what ways can he cope with his condition?

Colour vision deficiency (CVD) is the impaired ability to identify or distinguish between certain colours. Complete colour blindness, which is an inability to see any colour, is very rare. Most people with CVD possess good eyesight and are able to adapt to the deficiency. It is a common condition that affects around 1 in 12 men and 1 in 200 women. In Singapore, it's been found that 5.3% of boys and 0.2% of girls are affected by this condition.

CVD is usually a hereditary condition caused by a defect in the gene responsible for the development of colour-sensing cones in the retina. It typically wouldn't worsen and is rarely a sign of anything serious. The most common form of CVD is red-green colour deficiency. Someone with this type of CVD may find it hard to tell the difference between reds, oranges, browns, yellows and greens, confuse red and black, have difficulty distinguishing shades of purple, and see these colours duller than they would to someone with normal vision.

CVD can sometimes cause issues such as: inappropriate use of colours (such as colouring the skies purple and the grass red); difficulty identifying red or green colour pencils; difficulty reading from coloured pages or identifying colour in low lighting and small coloured areas; eye strain or headache from looking at something red on a green background (or vice versa); sensitivity to bright lights; short attention span when doing colouring sheets; dislike for games or activities involving colours.

Children with CVD may be mistaken for having learning or behavioural issues. This would undermine their confidence and affect learning. Send your child for a complete eye examination and colour vision check if you think he or she may have CVD.



## COPING WITH CVD

These are some ways you can help your child cope with CVD:

- Inform family members or people who have frequent interactions with your child, about his or her condition
- They can help to choose matching clothes, check whether food is safe for consumption, etc
- Inform your child's school so that learning materials can be adapted accordingly
- Use strong colour contrasts on whiteboard
- Use electronic devices with settings you can change to make them easier to handle
- Use patterns and shapes as teaching tools, instead of coloured diagrams or pictures
- Label pencils and paints
- Refrain from colour-based descriptions when giving instructions
- Install good quality lighting in your home to help distinguish colours better
- Identify and manage any self-esteem issues early



*Dr Deborah Tan, Consultant, Paediatric Ophthalmology & Adult Strabismus Department, SNEC*

# A KEY TEAM OF SNEC: OPHTHALMIC IMAGING SERVICES

We cast the spotlight on the important but often underrated role of this department in the eye care setting.



*Staff taking images of a patient's eyes using the Fundus Fluorescein Angiography equipment*

**A**n integral part of SNEC's suite of services, the Ophthalmic Imaging Services team produces high-quality images of the eyes, which allow ophthalmologists to make accurate analyses and diagnoses, and prescribe appropriate treatment. With the eye images, the ophthalmologists can also better explain the conditions to their patients.

Furthermore, ophthalmic imaging devices are able to identify

anatomical and disease features that are not readily visible with standard examination techniques. Findings are recorded in a reproducible and transmissible manner. Hence, ophthalmic imaging plays a key role in the screening and long-term monitoring of ocular conditions, teaching, and trials.

Imaging services are available at SNEC main centre, Diabetes & Metabolism Centre (DMC) and SERI, with recent expansion into SNEC

Eye Clinic @ SKH (Sengkang General Hospital).

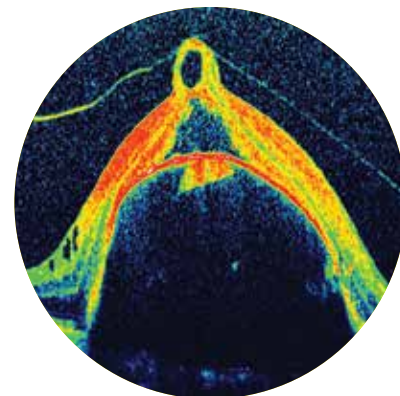
These services are supported by the Ophthalmic Imaging department led by Assoc Prof Gemmy Cheung, Clinical Director of Ophthalmic Imaging Services, and which consists of seven imaging specialists, one ophthalmic illustrator and two support staff.

## **The ophthalmologist's aide**

"An ophthalmic imaging specialist



“*High-quality images of the eyes allow ophthalmologists to make accurate analyses and diagnoses.*”



*An image taken via Retinal Optical Coherence Tomography*

is an extension of the doctor’s eye – his right-hand man,” says Joseph Ho, Principal Ophthalmic Imaging Specialist, who has taken thousands of shots in his 23 years with SNEC.

According to Assoc Prof Cheung, the department receives an average of 200 to 300 patients daily, and performs over 71,000 imaging procedures annually. The team also regularly serves at corporate and community eye screening events.

While a high patient load entails more hard work, the imaging specialists take challenges – such as managing patients with dementia and/or ocular media opacities, and uncooperative paediatric patients – in their stride and exercise extra patience when handling these cases.

Other than educational qualifications and clinical experience, good communication skills, passion, and the ability to work with patients, parents and physicians are essential to become an imaging specialist.

### Staying ahead

When the department first started, there were only a few imaging tests with relatively simple instruments. Over the past 10 to 15 years, there have been significant advances in this field.

“Ophthalmic imaging is an area that must keep up with the latest developments. We keep abreast of new technologies, arm ourselves with state-of-the-art instruments, and upgrade the skill sets of our staff to handle new equipment,” Assoc Prof Cheung shares.

“In this digital era, we also work with IT to link our huge database to the clinics for the ophthalmologists to have instant access during consultation, and to securely store and back up data.”

### #SquadGoals

Every year, the team takes part in international competitions, such as American Academy of Ophthalmology/Ophthalmic Photographers’ Society (AAO/OPS) Meeting, ASCRS-ASOA

meetings, International Conference on Ophthalmic Photography (ICOP) and Vision Research of Europe Meeting. At these events, they pit their skills against worldwide ophthalmic imaging experts.

Since 1999 till date, SNEC has won about 250 awards, including two ‘Best of Show’ prizes. Last year, SNEC hosted the ICOP 2017 in Singapore. The team’s eye images have also appeared in leading publications, such as *EyeNet Magazine*, *The Journal of Ophthalmic Photography* and *The Retinal Atlas*, which bears testament to their outstanding capabilities.

*SNEC Ophthalmic Imaging Services team*



# Raising Awareness on Vision Rehabilitation



Over 200 optometrists, opticians, nurses and members of the public attended a seminar at the Academia Auditorium on 26 May.



Speakers from SNEC's Low Vision Service, Medical Social Services, Optometry Service and SGH's Occupational Therapy Department gave tips on coping with vision loss and advice for caregivers, and introduced vision rehabilitation techniques and tools to help patients carry out daily activities safely and confidently.

Participants had the opportunity to try the low vision aids at the exhibition booths. Sunglasses that provide sun protection were also available for sale at the event. In addition, 50 participants attended a hands-on workshop where they learned to use accessibility features on smart devices.



# Extraordinary Spirits

We celebrate three patients and caregivers of SNEC who have recently won the SingHealth Inspirational Patient and Caregiver Awards 2018.

Inaugurated in 2010, the SingHealth Inspirational Patient & Caregiver Awards (IPCA) recognise individuals who demonstrate extraordinary courage, resilience and strength in the face of healthcare challenges, and motivate others in their journeys.

## LITTLE HERO

Just before his sixth birthday, Javier Lim went for an eye check-up only to discover he had two brain tumours. Over the next five years, doctors found and removed five more tumours in his brain. These surgeries were followed by many sessions of physiotherapy and speech therapy. Undaunted by his condition, Javier bore his surgical scars well and completed follow-ups with smiles. Doctors and nurses who have treated Javier attest to his tenacity and optimistic attitude. "I want to let other kids who are sick know that they are not alone and to always stay positive," he says.



## WARRIOR AGAINST ALL ODDS

Despite his arduous journey with diabetic retinopathy (DR), Tan Poo Koon's zest for life remains strong. After he was diagnosed with DR in 2000, his left eye gradually deteriorated until it had to be surgically removed. Tan, who has been a SNEC patient for 18 years, was then fitted with a prosthetic eye. Now, he goes for regular eye check-ups to keep his condition under control so he can continue travelling and spending quality time with his family. Aw Ai Tee, Deputy Director of Nursing at SNEC's Specialist Outpatient Clinics, describes Tan as one of the most resilient patients that she's encountered. "It is admirable how he continues to fight against all odds after each setback."



### THE TOUGH COOKIE

For the past 20 years, administrative assistant Ng Lui Teen has been the sole breadwinner and primary caregiver for her three elder sisters with Down syndrome. While coping with work, Lui Teen brings her sisters to SNEC and other hospitals for their medical appointments, and visits her eldest sister at a nursing home. Despite the challenges of caring for her siblings, Lui Teen is happy and willing to look after them for as long as she could. Dr Livia Teo, a consultant at SNEC's Oculoplastic Department, admires her dedication. "Lui Teen selflessly takes care of her siblings, and is always cheerful and patient," she adds.

**Congratulations to these inspiring individuals!**

## PROMOTIONS



**Dr Allan Fong**  
Head and Senior Consultant  
General Cataract & Comprehensive Ophthalmology Department, SNEC



**Dr Olivia Huang**  
Associate Consultant  
General Cataract & Comprehensive Ophthalmology Department, SNEC



**Dr Rachel Chong**  
Associate Consultant  
Glaucoma Department, SNEC

**Prof Cheng Ching-Yu**  
Senior Clinician Scientist  
Glaucoma Department, SNEC; Head, Ocular Epidemiology Research Group, SERI

On his distinguished promotion to Professor (with tenure), Ophthalmology & Visual Sciences Academic Clinical Program (EYE ACP), SingHealth Duke-NUS Academic Medical Centre



# AWARDS

## SINGHEALTH EXCELLENCE AWARDS 2018

### Dr Daniel Ting

Associate Consultant  
General Cataract  
& Comprehensive  
Ophthalmology Department,  
SNEC



## MOH NURSES' MERIT AWARD 2018

### Mabel Yeo Wei Lim

Nurse Clinician  
Nursing-Outpatient  
Department, SNEC



## KWAN IM THONG HOOD CHO TEMPLE PROFESSORSHIP

### Prof Aung Tin

Deputy Medical Director  
(Research), SNEC; Senior  
Consultant, Glaucoma  
Department, SNEC; Executive  
Director, SERI

# NEW APPOINTMENTS

### Dr Ong Hon Shing

Associate Consultant  
Corneal & External  
Eye Disease  
Department, SNEC



### Dr Lim Hou-Boon

Associate Consultant  
General Cataract  
& Comprehensive  
Ophthalmology  
Department, SNEC

# EYE ACP AWARDS

## 33RD ASIA-PACIFIC ACADEMY OF OPHTHALMOLOGY (APAO) CONGRESS

### Senior Achievement Award

#### Prof Aung Tin

Deputy Medical Director (Research), SNEC; Senior Consultant, Glaucoma Department, SNEC; Executive Director, SERI; Academic Vice Chair (Research), Ophthalmology & Visual Sciences Academic Clinical Program (EYE ACP), SingHealth Duke-NUS Academic Medical Centre, Kwan Im Thong Hood Cho Temple Professor of Ophthalmology, Duke-NUS Medical School

### Achievement Award

#### Dr Mohamad Rosman

Head & Senior Consultant, Refractive Surgery Department, SNEC; Senior Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC

#### Dr Choo Chai Teck

Clinical Director (Aesthetic Eyeplastic Service) and Senior Consultant, Oculoplastic Department, SNEC; Senior Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC

#### Dr Ti Seng Ei

Senior Consultant, Cataract Department, Corneal & External Eye Disease Department, Refractive Surgery Department and General Cataract & Comprehensive Ophthalmology Department, SNEC

#### Dr Marcus Ang

Consultant, Corneal & External Eye Disease Department, Refractive Surgery Department and General Cataract & Comprehensive Ophthalmology Department, SNEC; Clinical Director, Pharmacy Department, SNEC

#### Dr Gary Yam

Principal Investigator and Head, Experimental Microscopy Support Platform, SERI

## ACADEMY OF ASIA-PACIFIC PROFESSORS OF OPHTHALMOLOGY

### Fellow

#### Prof Chee Soon Phaik

Head & Senior Consultant, Cataract Department and Ocular Inflammation & Immunology Department, SNEC; Senior Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC

## 35TH ANNUAL ANZ CORNEAL SOCIETY AND EYE BANK MEETING

### Douglas Coster Medal Lecture

#### Assoc Prof Jodhbir Mehta

Head & Senior Consultant, Corneal & External Eye Disease Department, SNEC; Senior Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC; Deputy Executive Director, SERI; Academic Deputy Vice Chair (Research), Ophthalmology & Visual Sciences Academic Clinical Program (EYE ACP), SingHealth Duke-NUS Academic Medical Centre

## THE 6TH FUCHS SYMPOSIUM

### Charles Tillett Lecture

#### Prof Donald Tan

Arthur Lim Professor in Ophthalmology; Visiting Senior Consultant, Corneal & External Eye Disease Department, Refractive Surgery Department and General Cataract & Comprehensive Ophthalmology Department, SNEC

## NATIONAL MEDICAL RESEARCH COUNCIL

### Clinician Scientist Award - Senior Investigator

#### Assoc Prof Louis Tong

Senior Consultant, Corneal & External Eye Disease Department and General Cataract & Comprehensive Ophthalmology Department, SNEC; Principal Clinical Scientist, Head, Ocular Surface Research Group and Co-Head, Ocular Inflammation & Immunology Research Group, SERI

### Transition Award

#### Dr Liu Yu-Chi

Clinician Scientist, Corneal & External Eye Disease Department, SNEC; Clinician Scientist, Tissue Engineering & Stem Cell Groups, SERI

### Research Training Fellowship

#### Dr Wong Chee Wai

Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC

## SINGAPORE NATIONAL ACADEMY OF SCIENCE (SNAS) FELLOWSHIPS: FELLOW OF THE SINGAPORE NATIONAL ACADEMY OF SCIENCE (MAY 2018)

#### Prof Wong Tien Yin

Medical Director, SNEC; Deputy Group Chief Executive Officer (Research & Education), SingHealth; Vice Dean, Office of Academic and Clinical Development, Duke-NUS Medical School; Academic Chair, Ophthalmology & Visual Sciences Academic Clinical Program (EYE ACP), SingHealth Duke-NUS Academic Medical Centre

## MOH HEALTHCARE RESEARCH SCHOLARSHIP - MASTER OF CLINICAL INVESTIGATION (MCI) PROGRAMME

#### Dr Andrew Tsai

Associate Consultant, General Cataract & Comprehensive Ophthalmology Department, SNEC; Deputy Clinical Director, Pharmacy Department, SNEC

## SINGHEALTH DUKE-NUS RESEARCH APPRECIATION AWARDS 2018

### Peace Prize Award

#### Prof Ecosse Lamoureux

Director, Population Health, SERI; Head, Health Services Research Group, SERI; Head, Data Management Support Platform, SERI; Professor, Ophthalmology & Visual Sciences Academic Clinical Program (EYE ACP), SingHealth Duke-NUS Academic Medical Centre; Professor, Health Services & Systems Research Programme, Duke-NUS Medical School

*SNEC provides eye treatment for the full spectrum of eye conditions:*

- General Cataract & Comprehensive Ophthalmology
- Cataract Subspecialty
- Corneal & External Eye Disease
- Glaucoma
- Neuro-Ophthalmology
- Ocular Inflammation & Immunology
- Oculoplastic
- Paediatric Ophthalmology & Adult Strabismus
- Refractive Surgery
- Medical & Surgical Retina



**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  
Mondays to Fridays



**Consultation by appointment:**



**Tel: 6227 7266**



**Email: [appointments@snec.com.sg](mailto:appointments@snec.com.sg)**



**Visit us: [www.snec.com.sg](http://www.snec.com.sg)**

**Like us on: [f /@SNEC.SERI](https://www.facebook.com/SNEC.SERI)**

**GP Hotline:  
6322 9399**

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



# SNEC

## Branches and Affiliated Clinics



**1 CENTRAL**  
**SNEC Eye Associates**  
**Gleneagles Hospital**  
6A Napier Road #02-39/40,  
Annexe Block Singapore 258500  
Tel: 6835 1188

**2 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), SGH**  
17 Third Hospital Avenue,  
#02-00 Singapore 168752  
Tel: 6421 8500

**4 KK Eye Centre**  
**KK Women's & Children's Hospital**  
100 Bukit Timah Road, Level 1,  
Children's Tower Singapore 229899  
Tel: 6394 1930 / 6394 1931

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

**6 SNEC Eye Clinic @ CGH**  
**Changi General Hospital**  
2 Simei Street 3, Level 1  
Singapore 529889  
Tel: 6850 1450 / 6850 1470

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

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

Consultation by appointment: 6227 7266 GP Hotline: 6322 9399

Email: [appointments@sneec.com.sg](mailto:appointments@sneec.com.sg)

Visit us: [www.sneec.com.sg](http://www.sneec.com.sg)

 /@SNEC.SERI