



## ACADEMIC CHAIR'S MESSAGE

Dear Friends and Colleagues,

As I sit to write this message, Singapore is already progressing towards treating COVID-19 as an endemic disease, a state in which calibrated measures have been put in place, as the majority of our Singapore population becomes fully vaccinated and adjusts to the new normal. I would like to thank all of you for quickly adapting to the new norm, and for your support as we re-examine, redefine and rebuild our existing models with regard to work, patients and healthcare delivery models while working towards the realisation of our goal to be a global centre of excellence in eye and vision.

### A NEWSLETTER REBRANDED

Some of you may remember *Singapore Eye*, the newsletter of the Ophthalmology and Visual Sciences Academic Clinical Program (EYE ACP), which made its debut in 2016. The publication provided insights on up-to-date advances, and highlighted happenings in the Singapore National Eye Centre (SNEC) and Singapore Eye Research Institute (SERI), as well as the endeavours of Duke University. I am happy to announce that the newsletter that you are now reading is the rebranded version of EYE ACP's newsletter.

Now a semi-annual e-newsletter, it has been re-named *EyeSight* to reflect the insightful articles covering developments in the three vital domains of SNEC-SERI — namely Clinical, Research and Education — that have transpired in the past year, giving us time to reflect and recognise our accomplishments thus far.

EYE ACP held its inaugural Town Hall in September 2020. The virtual event was conducted via the Zoom platform, and attracted more than 500 participants from SNEC-SERI, SingHealth and Duke-NUS. It was a chance to share key highlights and challenges amidst the COVID-19 pandemic, and also to take time to recognise and thank those who had stepped forward to contribute during the pandemic. EYE ACP continues to pursue excellence in clinical care, medical education, and research, which remain the key focus of SNEC and SERI.

### ON THE CLINICAL FRONT

With the increased number of patients with age-related macular degeneration (AMD) needing regular disease surveillance, and those with exudative AMD requiring regular intravitreal injections, the retina clinic's patient load over the past five years has dramatically increased. The timely launch of the Retinal Observation Clinic in July 2020 has led to cost savings, thanks to the shift from a traditional doctor consultation model.

The Regional Eye System department had similarly taken the opportunity during the pandemic to explore ideas that could reduce patients' dwell time in the hospital and make visits more convenient. The department has implemented MOH's Beyond Hospital to Community, Beyond Quality to Value, and Beyond Healthcare to Health initiatives, which you will read in the next few pages.

### ON THE EDUCATION FRONT

The SNEC Training and Education team has developed Project EYETRAIN, a long-term plan to develop comprehensive training programmes for eyehealth professionals across all levels in Ophthalmic education.

Over the years, SNEC's Training and Education team has produced quality educational programmes to support development of the

eyecare workforce locally and internationally. One of the main thrusts to the academic development focus has been the shift in promoting e-learning as a pivotal platform to develop learning content to address various training needs.

The highlights of our other key accomplishments for the year will be featured in the following few pages.

### ON THE RESEARCH FRONT

I would also like to commend SERI and its research team for securing a steady stream of competitive grant funding worth more than \$13 million and publishing more than 462 scientific papers this year. The theme of local and international collaborations continues to take place.

An international consortium — the Brain and Optic Nerve Study with Artificial Intelligence (BONSAI) — has successfully used an Artificial Intelligence (AI)-based, deep-learning system to detect papilledema and other serious health risks from eye images. This is a landmark study, as the AI system has shown 96% sensitivity in detecting eye images that show papilledema within a few seconds, and at a low cost.

A team of researchers from SERI and the Agency for Science, Technology and Research (A\*STAR) has identified a genetic mutation associated with exfoliation syndrome, the most common cause of glaucoma, and a major cause of irreversible blindness. Their research was published in *Journal of the American Medical Association* (JAMA) in February 2021.

### TIME TO REFLECT

It is imperative that we stop and reflect as we transit to the new norm. There will be increased use of telemedicine for online medical consultations, using AI to detect medical conditions, technological innovations, a shift towards e-learning for imparting knowledge — to name a few changes happening in the year.

In 2021, we've seen many leadership renewals and new appointments. This is important for SNEC to remain strategically competitive and be at the forefront of eyecare in Singapore and globally, with a resilient workforce ready to deal with the future. As we move into 2022, SNEC and SERI will be embarking on new milestones with renewed leadership and continuous reviewing of appointments; incremental changes to structures will be implemented and announced progressively. There is still a lot of work ahead in 2022 and beyond, and we will overcome challenges with continuous innovation and through working together as Team SNEC-SERI.

Lastly, I would like to take this opportunity to extend to you greetings of this year-end season, and warm wishes for a safe and healthy 2022!

### Prof Wong Tien Yin

Academic Chair,  
Ophthalmology & Visual Sciences  
Academic Clinical Programme  
(EYE ACP)



## NEW BAU ROSTER

Long waiting time in SNEC's Specialist Outpatient Clinics (SOC) has been a perennial problem, and accounts for about 50% of patient complaints we received in 2019. It was a key area of concern as highlighted in the 2019 MOH Patient Experience Survey. While the arrival of COVID-19 forced the whole of society to deal with the new normal, it also gave an opportunity to the Clinical Services (CS) team to work with various departments in SNEC to reduce waiting time for patients.

A comprehensive centre-wide review of all our doctors' templates and clinic rosters was performed. After six weeks of rigorous assessment and stakeholder-engagement sessions, we revised the roster of more than 100 doctors. The table (right) summarises the benefits achieved:

## Using a Priority Matrix to Determine Targeted Solutions



S/N	Possible Solutions	Effort (Score 1 to 4)	Benefit (Score 1 to 4)
1	Review doctors' template to spread out patients	4	4
2	Standardize clinic start times	3	4
3	Manage patients based on appointment times	2	3
4	Standardize New Case patients protocol	4	4
5	Create late release slots in Doctors' template	3	4
6	Standardize dilation protocol	4	4
7	Create postop slots in doctors' templates	3	3
8	Standardize tests for all patients	4	4
9	Enhance OAS to limit booking of patients	4	3

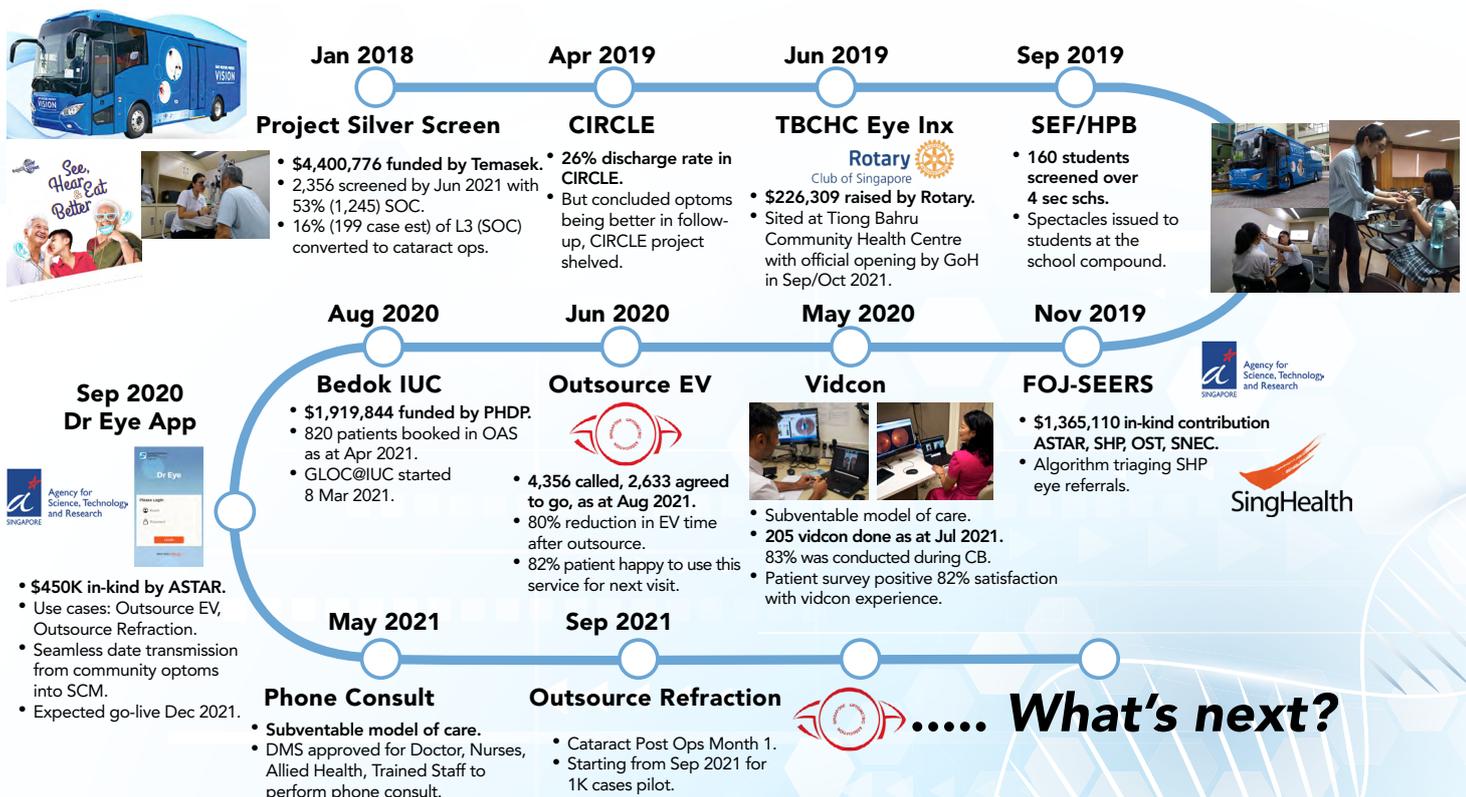
We are pleased to report that this exercise has led to the following positive results:

- 67% reduction in complaints on consultation waiting times;
- 82.4% of patients having waited 15 minutes or less for eye evaluation (5.4% improvement);
- 70.9% of patients having waited 60 minutes or less for a consultation (10.8% improvement); and
- 58% reduction in workload variance across different days of the week.

Given the persistence of COVID-19, the CS team is now working on the next stage of improving the BAU roster in order to mitigate against further pandemics.

## REGIONAL EYE SYSTEM

SNEC's Regional Eye System (RES) department has similarly taken advantage of the COVID-19 pandemic to explore ideas that could reduce patients' dwell time in the hospital and make visits more convenient for patients. The department's ideas were based on MOH's Beyond Hospital to Community, Beyond Quality to Value, and Beyond Healthcare to Health initiatives. The diagram (below) is a summary of some of the projects that the RES team has been involved with.





# CLINICAL HIGHLIGHTS

SNEC was one of the first few institutions to deploy video consultation (VC) so that patients could still access healthcare safely while the pandemic rages on. To date, we have conducted over 200 VCs across the entire centre. We also piloted a scheme that outsourced pre-consultation eye evaluation (EV) to the community. We have already outsourced more than 3,000 of such evaluations to selected community optometrists, and are looking at appointing more to join the scheme. Feedback from patients, doctors and nurses has been positive.

In 2020, SNEC successfully secured funding to pilot the concept of Investigation Units in the Community. These are essentially locations away from the main hospital where investigations, such as visual field tests, are performed. The results are reviewed remotely and asynchronously by ophthalmologists, who then convey their assessments back to the patient. With this workflow, patients do not need to attend hospital SOC but yet are able to receive high-quality care because they are still managed by ophthalmologists. For patients who have had routine uncomplicated cataract surgery, SNEC has been replacing the usual one-week SOC visit with a phone call conducted by a specialist nurse. To date, this initiative has saved nearly 35,000 visits to the SOC.

The Future-Outpatient-Journey (FOJ) project prompted the RES team to see if the referral process from polyclinic to SOC could be improved. Named the SingHealth Enhanced Eye Referral System (SEERS) initiative, this model uses AI interpretation of patient responses to a series of questions in order to aid diagnosis — without the need to see a family physician. We may include appropriate images to help refine this diagnosis at a later stage. The goal is to better support the polyclinic doctors' referral decision making and reduce inappropriate referrals to SNEC general clinics. This project is still in the research phase and is yet to be implemented.

Beyond Hospital to Community needs secure data transmission. SNEC is developing a specific eye-related app, named *Dr Eye*, that hopes to achieve seamless flow of data into Sunrise Clinical Manager (SCM), our e-medical records system. We are exploring how to combine the app's functionality with HealthBuddy so that SingHealth patients can see a consistent user interface.

### RETINAL OBSERVATION CLINIC

Our aging population has increased the number of patients with dry age-related macular degeneration (AMD) who need regular disease surveillance as well as those with exudative AMD who require regular intravitreal injections.

The number of intravitreal injections given at SNEC has grown from a few hundred in 2007 to more than 10,000 by 2017. These factors have dramatically increased the retina clinic patient load over the past five years. An audit of our diabetic retina clinics found that

up to 50% of patients have moderate or mild diabetic retinopathy that does not need active treatment, and can be monitored with imaging modalities alone. As such, the current model of care, where all patients receive a face-to-face consultation with the retina specialist, is no longer sustainable.

Retinal Observational Clinic (ROC) uses technician-acquired scans to assess the patient, with scan interpretation and clinical review provided remotely by specialist ophthalmologists. This separation of services in time and space maintains the quality of care — the patient still undergoes a specialist review — without the patient having to waste time waiting in an overcrowded clinic. It can potentially improve the operational efficiency of the retina clinic, increase the number of patients that can be assessed each day, and reduce the number of bottlenecks and waiting times in the retina clinics.

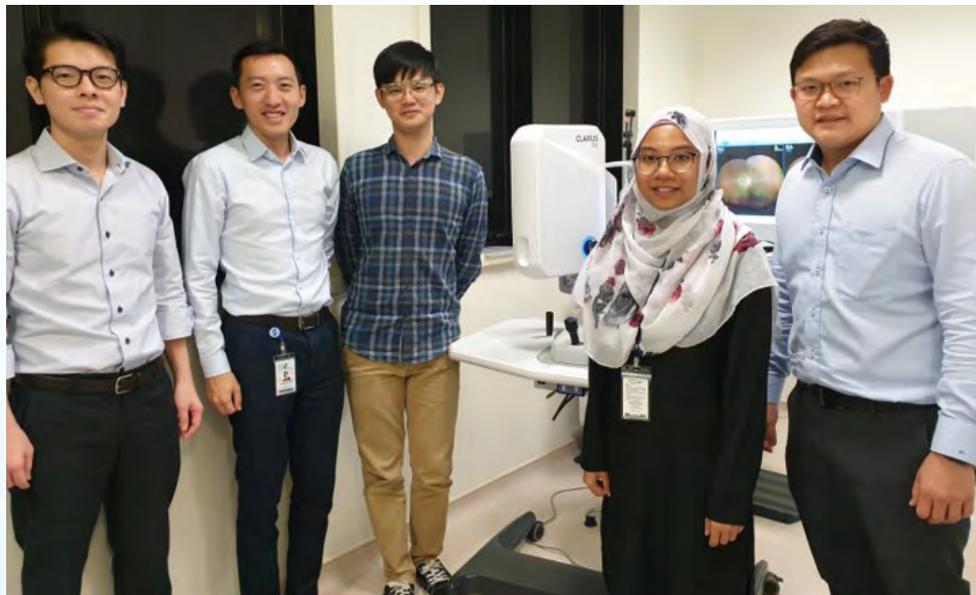
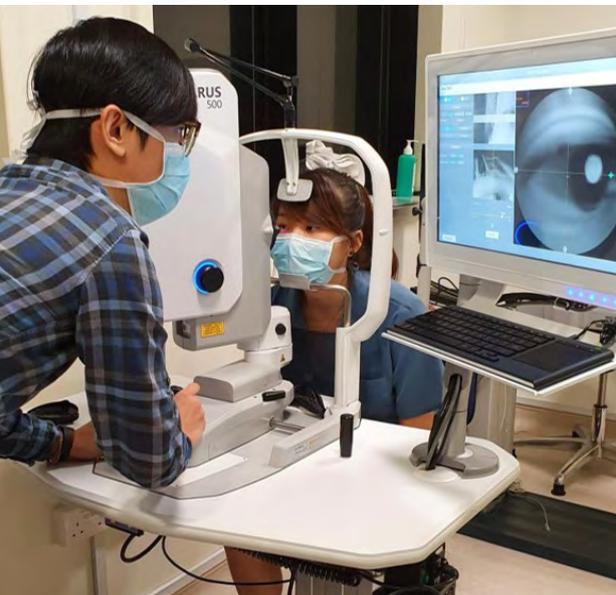
SNEC started conducting a pilot programme involving 435 patients in December 2018. Patients were selected for the ROC based on the fact that their next appointment was at least four months away. They were required to visit both the ROC and their regular consultation on the same day so as to fairly compare both sets of results for agreement.

About 90% of the patients had gradable scans, and the average time taken to complete stations at ROC was 33 minutes. The agreement rate between ophthalmologists and technicians was high (82%); out of the 18% that were arbitrated, a majority of them were deemed suitable for discharge by the specialist.

ROC was officially launched in July 2020, after the Circuit Breaker. From then till March 2021, the virtual clinic has screened a total of 1,368 patients:

- 4.9% of these patients were referred to retinal clinic on the same day; of these,
  - 2.5% were managed for active disease;
  - 1.3% requested for face-to-face consultation; and
  - 1% were wheelchair bound.
- 95.1% of these patients were seen in the virtual clinic and triaged. Of those who did not require immediate attention,
  - 0.08% were required to return within a month;
  - 0.09% were required to return in two to three months for further intervention; and
  - the remainder remained under the ROC care pathway.

ROC is a safe and efficient virtual clinic that is able to triage and manage stable patients while ensuring high-quality care to patients with retina diseases. It is potentially a cost-saving model that allows upskilling of our technicians, and frees up the limited resources used in a traditional doctor-consultation model. Off the back of our successful pilot programmes, we are working on increasing our service provision to manage 6,000 to 7,000 patients a year.





# EDUCATION HIGHLIGHTS

EYE ACP Training and Education team has a long-term plan, under project EYELEARN, to develop comprehensive training programmes for the eye care healthcare professionals across all levels so that we become a centre of excellence in Ophthalmic education. Over the years, it has been producing quality educational programmes to support the eye care workforce development locally and internationally. However, since the onset of the COVID-19 crisis in 2020, training activities have suffered significantly.

One of the main thrusts to the academic development focus has been promoting eLearning as a pivotal platform to develop learning content to address various training needs. EYE ACP has embarked on launching the courses online to countries around the region — this is still a work-in-progress.

Some recent achievements and developments of this important strategic initiative are listed below.

## AMEI GOLDEN APPLE AWARDS 2020/2021

The Duke-NUS-SNEC Basic Certificate for Ophthalmic Assistant and Technician has been accorded the Programme Excellence Award (allied health category) at the AMEI Golden Apple Awards 2021. The award recognises distinctive educational programmes in SingHealth and Duke-NUS Medical School across the various healthcare professions that apply best practices in education philosophies and follow a scholarly approach. The accorded programme has demonstrated the use of best practices to promote enhanced engagement, achievement and learning in healthcare education. The programme is also recognised for creating a curriculum and pedagogy that leads to high-quality teaching and learning.

## OA-OT TRAINING PROGRAMME

A total of 10 intakes of the OA-OT training programmes were implemented, achieving a total of 67 trained OAs and OTs from SNEC and external eye institutions. In addition, in 2017, a first foreign trainee, who hails from the Philippines, joined the abridged version of the four-month OT programme, which consists of online learning supplemented with a clinical practicum that aims to build the core competencies of ophthalmic technicians.

## SPECIALIST DIPLOMA IN OPHTHALMIC MEDICAL TECHNOLOGY (OMT)

EYE ACP has attained accreditation by the College of Allied Health, SingHealth Academy, for the newly developed Specialist Diploma in Ophthalmic Medical Technology (OMT), and successfully launched the pilot intake of the programme in September 2019. The second intake is targeted to launch in late 2021 or early 2022.

The programme specialises in ophthalmic investigations, imaging and grading. It is built on a modular structure, where participants will be conferred a Specialist Diploma upon completing three post-diploma certificates (PDC). A PDC will be conferred to participants who have completed the OA-OT basic training programme, which allows the education progression to attain the specialist diploma.

## ADVANCED DIPLOMA IN CLINICAL OPHTHALMOLOGY (FOR OPTOMETRIST)

EYE ACP has attained accreditation by the College of Allied Health, SingHealth Academy, for the newly developed Advanced Diploma in Clinical Ophthalmology (for Optometrist). Lasting a year and a half, the programme is designed to equip optometrists to practise autonomously in their roles as primary, secondary and tertiary eye care providers. The pilot run is targeted to launch in late 2021. The programme is divided into three post-diploma certificates, where participants will be conferred an Advanced Diploma upon completing three post-diploma certificates (PDC).

## GRADUATE CERTIFICATE (CLINICAL SPECIALISATION) – OPHTHALMIC NURSING

Jointly offered with Curtin University, a total of three intakes of the graduate certificate programme were launched, and 16 registered nurses (RN) from SNEC (EYE ACP) and external eye institutions have successfully graduated from it. The fourth intake of the programme commenced in July 2021 with eight SNEC RNs.



EYE ACP is also working with Curtin University to develop and launch post-graduate programmes that will further prepare the nurses with specialist educational qualifications in ophthalmology. This programme has received training bursaries of \$185,000 from Dr Della Lee Foundation, The Wan Boo Sow Charity Fund Ltd, and Asia Resource Corporation — all of which support nursing education.

## ADVANCED DIPLOMA IN OPHTHALMIC NURSING

Advanced Diploma in Ophthalmic Nursing, a new nursing programme, is currently undergoing curriculum development and attaining accreditation approval from the College of Clinical Nursing (CCN), SingHealth Academy.

The advanced diploma programme is a clinical-based specialty course in ophthalmic nursing for registered nurses who wish to stay in the specialty but do not aspire to undertake the Graduate Certificate (Clinical Specialisation) – Ophthalmic Nursing, which is at the post-baccalaureate university level. The programme also aims to provide educational opportunities for nurses so that they are well equipped with the necessary knowledge and skills in the specialty of ophthalmology, which had been found lacking. The programme is targeted to launch its pilot run in July 2022.

## CERTIFICATE IN INTRAVITREAL INJECTIONS

Since 2017, three intakes of the Certificate in Intravitreal Injections (IVT) have been held, training a total of 27 RNs from SNEC. Of those who have undergone the rigorous IVT training and practicum, 11 RNs have since started to administer injections for patients in the IVT clinics.

The programme provides ophthalmic nurses with the knowledge and skills to competently perform intravitreal injections. It also aids in the management of patients' waiting time in IVT clinics by developing a competent nursing workforce with an expanded scope of practice that better manages the increased load of chronic eye cases. The programme has significantly impacted service enhancement and cost savings for both patients and the institution. We are working on an impact assessment project with the Duke-NUS HSSR team, and the results will be published in the coming year.

The programme has attracted the attention of overseas partners, such as The Royal Australian and New Zealand College of Ophthalmologists (RANZCO). In fact, SNEC signed a Memorandum of Understanding (MOU) with the organisation to explore the possibility of offering the programme to train nurses from Australia and New Zealand so that they can administer IVT injections in their respective countries.

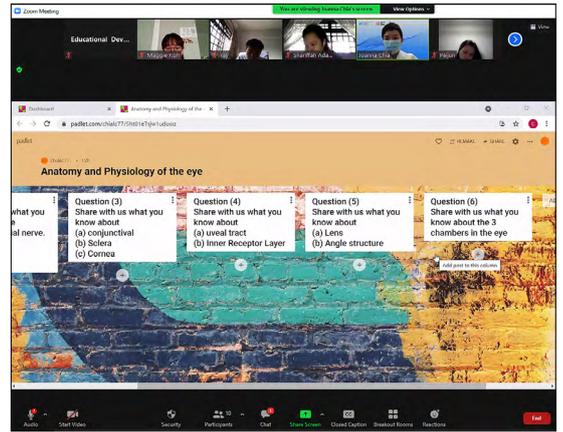
## EYE ACP VISION TRAINING MATERIALS E-REGISTRY DEVELOPMENTS

EYE ACP has received a total of \$64,000 from Academic Medicine Philanthropic Funds and ACP programme funding for the building and development of eLearning materials so as to launch the Vision Training Materials E-Registry in 2019–2020. To further the eLearning developments that the ACP funds support, EYE ACP's in-house instructional designers are continuing to develop the Vision Training Materials E-Registry.

For instance, the OA-OT programme is currently undergoing digitalisation. The face-to-face lectures are being converted to elearning content, enabling a wider audience to be reached and for modular learning to take place. Other digitalised programmes that



# EDUCATION HIGHLIGHTS



are undergoing development include clinical content, such as the Myopia online and Descemet's Membrane Endothelial Keratoplasty (DMEK) online courses.

### WEBINAR DEVELOPMENTS

The first SNEC webinar, 'Essentials in Neuro-Ophthalmology', was jointly held with the NUH – Ophthalmology Final MMed preparatory course Neuro-Ophthalmology component in December 2020. The Neuro-Ophthalmology team coordinated with local and international speakers to develop this three-day webinar, which serves as a refresher for general ophthalmologists, and as a platform for consolidating knowledge and practice of neuro-ophthalmology for residents sitting for their final MMed examination. This webinar received an overwhelming response from more than 20 countries. The feedback received was positive overall, although there were some comments for the organisers to look into the duration of the event as well as the complexity of the cases presented.

Following the success of that first webinar, the inaugural 'SNEC-Global Ophthalmology Rounds (Glaucoma)' webinar — involving the faculty from Siriraj Hospital (Thailand), Cicendo Hospital (Indonesia) and SNEC — was held in June 2021 in the newly set up E-studio. This webinar is part of the SNEC-GO Rounds Webinar Series, which focuses on different sub-specialties every quarter. Many fellows and residents who attended the webinar commented that the discussion on cases provided useful information and helped to widen their knowledge. With the current COVID-19 situation, webinars are in high demand, and this is an excellent opportunity



for SNEC to use webinars to connect, share best practices and techniques, and interact with ophthalmologists and eye care practitioners from around the world.

### E-STUDIO DEVELOPMENTS

To cater to the increasing demand for webinars and E-Registry development works, an E-studio has been set up in SNEC. It is able to live-stream different set-ups, such as Town Hall virtual meetings, panel discussions, and webinars. In addition, it has produced surgical teaching videos, case discussion, pre-recorded videos for APAO Bayer Symposium, DME Symposium @ Euretina, and voice-over presentations for APACRS.

SNEC's E-studio team is working with influential brands, and these market leaders have enriched the team's experience in creating better video content. The studio features a green screen, lighting, professional audio system, camera equipment, and Tricaster technology with virtual sets. The E-studio allows presenters to interact with their audience during a live event or live-streaming, and is an effective two-way communication tool.

The E-studio has become an important tool for improving productivity and staying relevant during COVID-19. The team will strive to provide the faculty with an excellent platform to communicate with the world.

### DEVELOPMENT OF EDUCATIONAL PARTNERSHIPS

EYE ACP is working to develop a collaboration model through which its best practices of eye care workforce training can be synthesised to create harmonised educational programmes for workforce development with the help of suitable partners.

In late 2020, a Memorandum of Agreement (MOA) was signed between SNEC and Santen Pharmaceutical Asia Pte Ltd to disseminate the Allied ophthalmic personnel training to suitable regional partners. There is a strong synergy between Santen's vision to enhance the eye care ecosystem to improve eye care delivery, and our programme launch's aim to enable task shifting as a critical strategy in coping with workforce shortages in countries around the region.

This initiative is a step towards transforming SNEC into a regional ophthalmic training hub, where we will provide eLearning capabilities via an online platform for our educational content. To support this cause, Santen has donated \$250,000. The same amount will be donated by the Tote Board, which has approved a dollar-to-dollar matching grant.

This strategic project has been in development for some time, and bringing it to fruition now is timely: with the current COVID-19 crisis and its impact on healthcare training, such an online registry can enable the workforce to continue their learning from the safety of their respective homes. Also, this platform would allow the ongoing training of the clinical workforce with online webinars and CMEs.



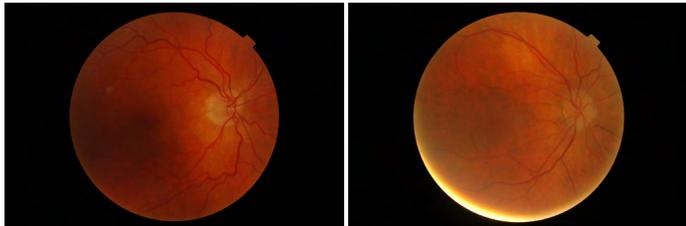


# RESEARCH HIGHLIGHTS

SERI has demonstrated a steady stream of achievements in FY2020 that included the following:

- Secured more than S\$13.31 million in competitive, peer-reviewed grants
- Received 96 national and international awards
- Published 462 scientific papers
- Filed 8 patents
- Trained 32 Master's/ PhD/ Post-doctorate students

## USING AI TO DETECT PAPILLEDEMA & SERIOUS HEALTH RISKS FROM EYE IMAGES

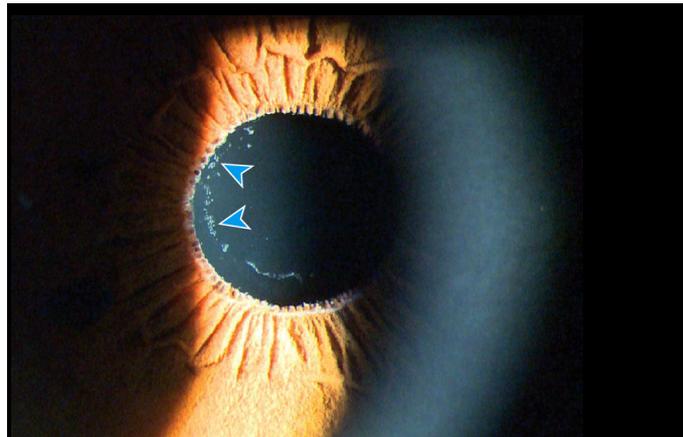


An international consortium called BONSAI (Brain and Optic Nerve Study with Artificial Intelligence) has successfully used an AI-based, deep-learning system to look at multiple photographs of the back of the eye (optical disc) to infer whether the eye is normal, has papilledema due to intracranial pressure, or other abnormalities. This is a landmark study, because the AI system has shown 96% sensitivity in detecting eye images that show papilledema — and it does that in just a few seconds at minimal cost!

This AI system was developed by a global collaboration of scientists, including researchers from SERI, Duke-NUS Medical School, and Agency for Science, Technology and Research (A\*STAR). The study involved more than 7,532 patients from multi-ethnic communities from 25 centres around the world; the AI system was trained to detect papilledema and normal optical discs from over 15,846 ocular fundus photographs.

Paper: *N Engl J Med* 2020; 382:1687-1695 DOI: 10.1056/NEJMoa1917130  
Title: Artificial Intelligence to Detect Papilledema from Ocular Fundus Photographs

## SCIENTISTS IDENTIFY GENETIC MUTATION ASSOCIATED WITH EXFOLIATIVE SYNDROME, THE MOST COMMON CAUSE OF GLAUCOMA



The typical white exfoliation material deposits on the surface of the lens are visible (blue arrows).

A team of researchers from SERI and A\*STAR has identified a genetic mutation associated with exfoliation syndrome, the most common cause of glaucoma. Their research was published in *Journal of the American Medical Association (JAMA)* in February 2021.

This multi-centre, whole-exome sequencing study involved 20,441 participants from 14 countries across Asia, Europe, and Africa — including more than 1,200 Singaporeans. The study showed that patients with exfoliation syndrome were more likely to be carriers of the functionally deficient CYP39A1 gene.

Exfoliation syndrome is a systemic disorder characterised by abnormal protein material accumulating in front of the eye. This disorder is the most common cause of glaucoma, and a major cause of irreversible blindness.

Title: Association of Rare CYP39A1 Variants With Exfoliation Syndrome Involving the Anterior Chamber of the Eye

## FOUR PUBLICATIONS IN OPHTHALMOLOGY IN A MONTH!

Four original papers from SNEC-SERI were published in the March 2020 issue of *Ophthalmology*, a leading journal by the American Academy of Ophthalmology.



The papers involve studies and findings on

- Polypoidal Choroidal Vasculopathy (PCV);
- the differential impact of age on vision-related quality of life;
- the link between recently identified genetic loci and disease severity of primary angle-closure glaucoma (PACG); and
- the association of antihypertensive medication with retinal nerve fibre layer (RNFL) and ganglion cell-inner plexiform layer (GC-IPL) thickness.

Click the following links to read these four papers:

- [https://www.aaojournal.org/article/S0161-6420\(17\)32863-4/fulltext](https://www.aaojournal.org/article/S0161-6420(17)32863-4/fulltext)
- [https://www.aaojournal.org/article/S0161-6420\(20\)30731-4/fulltext](https://www.aaojournal.org/article/S0161-6420(20)30731-4/fulltext)
- [https://www.aaojournal.org/article/S0161-6420\(20\)30691-6/fulltext](https://www.aaojournal.org/article/S0161-6420(20)30691-6/fulltext)
- [https://www.aaojournal.org/article/S0161-6420\(20\)30739-9/pdf](https://www.aaojournal.org/article/S0161-6420(20)30739-9/pdf)



## SERI RESEARCH DAY

SERI celebrated its first-ever Research Day on 19 March 2021. It was a first-of-its-kind hybrid event at SingHealth, with the audience joining live at the SERI auditorium and online via Zoom. The day's programme saw participation from clinicians, research faculty, staff and post-docs, all of whom enjoyed themselves immensely. The opening address by Prof Wong Tien Yin, Academic Chair, EYE ACP, on 'Why Research is Critical for SNEC-SERI' was insightful, and gave us an overview of where we are today and what we need to do to maintain our international standards moving forward.



# RESEARCH HIGHLIGHTS

## SERI SPIN-OFFS

In June 2020, PLANO, SERI's third spin-off company, secured a Series B investment from Japanese pharmaceutical company Santen to help grow PLANO's user engagement, strengthen its AI capabilities, and drive its international expansion plans.

EyRIS, SERI's fourth spin-off company — which is also a joint venture between SERI, NUS and local veteran healthcare IT company NovaHealth — has made significant progress on receiving regulatory approvals, including from Singapore's Health Sciences Authority and the Medical Device Authority of Malaysia's Ministry of Health. EyRIS also cleared EN ISO13485:2016 and obtained CE mark certification.



Spiralis, a product that was jointly developed by SERI and NUS, has been licensed to Geuder AG, a German company that is one of the world's leading manufacturers of ophthalmic surgical products. Our patented technology, Spiralis is a disposable, novel, easy- and safe-to-use pupil expander for cataract surgery.

## DISTINGUISHED AND FACULTY PROFESSORSHIPS

Four Distinguished and Faculty Professorships were awarded in 2020 to augment EYE ACP's strengths in leading innovative research and developing world-leading eye-care services. The recipients of the prestigious Professorships in Ophthalmology are shown below.

The Professorships will enable them to accelerate discoveries in their areas of research and nurture future leaders in Ophthalmology through mentorship and education; in doing so, they can transform eye care in Singapore.

			
<b>Prof Jodhbir Mehta</b> SNEC Professorship in Clinical Innovation in Ophthalmology	<b>Prof Chee Soon Phaik</b> SNEC Professorship in Clinical Education in Ophthalmology	<b>Prof Saw Seang Mei</b> SERI Professorship in Ophthalmology Research	<b>Assoc Prof Audrey Chia</b> Robert Loh Associate Professorship in Ophthalmology

## SERI RESEARCHERS HIGHLY RANKED ON EXPERTSCAPE

SERI has internationally reputed clinician scientists who are globally recognised as Key Opinion Leaders (KOLs) for their clinical expertise and distinguished publications. A 2021 report by Expertscape, a web platform that objectively ranks people and institutions by their expertise, on the basis of their publications in that area over the past 10 years, has shown that many of our faculty are recognised as the top 1% of their field globally in areas of Angle-closure Glaucoma, Cataract, Cornea, Deep Learning, Diabetic Retinopathy, Glaucoma, Macular Degeneration, Myopia, Retinal Diseases, Tears and Uveitis.



## SNEC/SERI APPEARED IN THE FOLLOWING MEDIA:

MEDIA	DATE	ARTICLE
The Straits Times	1 February 2021	'Don't be short-sighted about myopia in children'
	11 May 2021	'New AI scheduling system to shorten waiting times at SNEC by up to half'
	5 July 2021	'Over half of seniors polled unlikely to use telemedicine'
	4 August 2021	'New treatment eliminates inflammation after cataract op'
Knowledge Discovery & Data Mining Conference	14–18 August 2021	Opening address by Dr Janil Puthucheary, Senior Minister of State, Ministry of Communications and Information & Ministry of Health