SGH Alumni Newsletter

ISSUE 43| Oct — Dec 2023

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SGH PGMI
Postgraduate Medical Institute

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NEW APPOINTMENTS

Key Leadership & Clinical Appointments

Singapore General Hospital

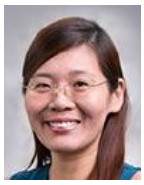
Dr Fu Wan Pei Cherylin
Director
Gastrointestinal Function Unit (GIFU)
Singapore General Hospital

Dr Ang Hui Gek
Director, Leadership, Coaching and Mentoring
Singapore General Hospital

A/Prof Tan Kian Hian
Clinical Director
Medication Safety
Singapore General Hospital

Dr Yeoh Chuen Jye
Clinical Director
Office of Human Factors & Ergonomics
Singapore General Hospital

A/Prof Cheng Tim-Ee Lionel
Head (Designate)
Diagnostic Radiology
Singapore General Hospital



Ms Esther Lim Li Ping
Chief Allied Health Professional (CAHP)
Singapore General Hospital

Ms Ng Hong Yen
Chief Pharmacist
Singapore General Hospital

SingHealth HQ & SingHealth Institutions

A/Prof Jagadesan Raghuram
Director (Special Projects),
Chairman, Medical Board's Office
Changi General Hospital

CI A/Prof How Choon How
Deputy Chairman, Medical Board
(Continuity Care Disciplines)
Changi General Hospital

Mr Gabriel Leong Kok Wah
Chief Allied Health Professional
Changi General Hospital

Dr Jonathan Seah Thiam Hock
Chief Pharmacist
Changi General Hospital

Adjunct A/Prof Camilla Wong Ming Lee
Chief Pharmacist
Sengkang General Hospital

Dr Jasper Tong
Chief Allied Health Professional
KK Women's and Children's Hospital

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NEW APPOINTMENTS

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Key Leadership & Clinical Appointments

SingHealth HQ & SingHealth Institutions

Prof Lim Soon Thye
Chief Executive Officer,
National Cancer Centre Singapore
Academic Chair,
SingHealth Duke-NUS Oncology Academic Clinical Programme (ONCO ACP)

Prof Rebecca Dent
Deputy Chief Executive Officer (Clinical),
National Cancer Centre Singapore
Academic Vice-Chair (Clinical Services),
SingHealth Duke-NUS Oncology Academic Clinical Programme (ONCO ACP)

A/Prof Ravindran Kanesvaran
Chairman
Division of Medical Oncology
National Cancer Centre Singapore

Asst Prof Tan Teing Ee
Deputy Chief Executive Officer
(National Cardiac Services and Quality) (Designate)
National Heart Centre Singapore

Ms Macy Thong Mee Chee
Chief Financial Officer
Singapore National Eye Centre

AWARDS

17TH TAN CHIN TUAN NURSING AWARDS

Our warmest congratulations to Siti Ruzaimah Binte Haron, Principal Enrolled Nurse, for winning the 17th Tan Chin Tuan Nursing Award!

This prestigious national accolade recognises the exceptional dedication of Enrolled Nurses like Siti Ruzaimah, who tirelessly contribute to the advancement of the nursing profession. Siti Ruzaimah embodies care, comfort, compassion, and humility in her patient interactions, delivering these essential qualities 'without a prescription'. Her patients consistently commend her for the outstanding service attitude and exemplary professionalism she brings to her role.

Established in 2006 by the D.S. Lee Foundation, the Tan Chin Tuan Nursing Award stands as a symbol of excellence for Enrolled Nurses, marking their significant contributions to the field.

Source: SGH Facebook

LONG SERVICE AWARDS

Meet two extraordinary individuals who have earned their 60-year long-service awards!

Ms. Loke Lye Chan, Senior Enrolled Nurse, Sterile Supplies Unit (SSU), and Ms. Fung Moh Kui, Senior Pharmacy Technician, Outpatient Pharmacy. With unwavering positivity and resilience, they have journeyed through the ever-evolving landscape of healthcare, witnessing its peaks and valleys along the way. Their stories inspire us all to stay dedicated and passionate in our journey! Watch the inspiring video here: https://for.sg/long-service-award

Source: SGH Facebook)

NEW DEVELOPMENTS

MOST-CITED SCIENTIST IN 2023

Our amazing SGH researchers are in the top 2% of the most-cited scientists in 2023!

Developed by Stanford University and published by Elsevier, this list features the top 100,000 scientists globally, showing how impactful our researchers are. Our researchers shine in both "Single-Recent-Year Impact" (citations in 2022) and "Career-Long Impact" (citations from 1996 to 2022).

Being in the top 2% emphasises the significant contributions our researchers have made to their fields.

Click here for the full scoop on this incredible achievement! https://for.sg/most-cited-scientist-2023

Source: SGH Facebook

JOINT RESEARCH & DEVELOPMENT LABORATORY BETWEEN SGH AND NTU

Singapore General Hospital (SGH) patients are expected to benefit from healthcare innovations, such as customised medical devices and implants, under a collaboration with **Nanyang Technological University, Singapore (NTU Singapore)** to set up a Joint Research & Development Laboratory in additive manufacturing (AM), also known as 3D printing.

These innovations are currently still in development, and when implemented, would represent a significant leap towards pioneering healthcare solutions that could redefine patient treatment.

The collaboration leverages the combined expertise and resources of **SGH's 3D Printing Centre and NTU's Singapore Centre for 3D Printing (SC3DP)** to study and develop related technologies for clinical applications in a point-of-care setup.

Professor Kenneth Kwek, Chief Executive Officer of Singapore General Hospital, said: "For more than 200 years, SGH has been a beacon of hope for all patients, consistently staying at the forefront of medicine. As a leading Academic Medical Centre with the privilege of being ranked among the world's best, our razor-sharp focus is on providing the best care and experience for our patients. This is a responsibility we take seriously, particularly as many who entrust us with their care have extremely complex health conditions.

We deeply value collaboration with like-minded partners and we are so grateful to find a key partner who shares our values and who brings with them deep expertise. Together, the possibilities that we can bring to our patients are limitless. We can advance care to enable better outcomes and a better experience for all patients and future users of healthcare."

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NEW DEVELOPMENTS

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Professor Lam Khin Yong, Vice President (Industry) of NTU Singapore, said: "Through the combined medical expertise from SGH and the extensive knowledge of additive manufacturing and advanced materials of NTU's faculty, our collaboration aims to forge innovative solutions in the development of personalised prosthetic and orthotic devices, and explore new pathways for regenerative medicine. This collaboration also greatly benefits the next generation of clinicians, academics and engineers, through its upcoming shared educational programmes, shared resources, and joint initiatives. NTU and SGH are committed to nurturing new talent that possesses the skills and knowledge needed to navigate the ever-evolving medical landscape."

The collaboration, which aims to provide solutions that could redefine patient treatment, reflects NTU's commitment to responding to the needs and challenges of healthy living and ageing, which is one of four humanity's grand challenges that the University seeks to address through its **NTU 2025 strategic plan.**

The Joint R&D Lab in additive manufacturing will focus on the following four areas:

1. Prosthetic & Orthotic Devices

This research area involves developing capabilities in the modelling and use of additive manufacturing methodologies for Prosthetic & Orthotic (P&O) devices, including Ankle Foot Orthosis, Wrist Hand Orthosis, and Below Knee Amputation Sockets.

Key objectives include defining design guidelines and requirements to 3D print the devices, which will involve engineering analysis, material selection, and functional testing. Additionally, the project will study and determine the most optimal materials and manufacturing techniques utilising various additive manufacturing technologies.

2. Bioprinting for Regenerative Medicine

This research focus aims to develop capabilities to 3D print living tissues, or bioprinting, specifically for regenerative medicine. This involves exploring the clinical applications of bioprinting and working towards translating existing research in this field into practical clinical use. A part of this effort will be to assess the feasibility and infrastructure requirements necessary to set up bioprinting capabilities at the point-of-care.

Additionally, the project will focus on conducting research into new areas of bioprinting that hold high clinical significance, such as human organ printing, to further enhance its potential impact in regenerative medicine.

3. 3D Printed Implants at Point-of-Care

Developing capabilities for 3D printing medical implants directly at the point-of-care is the third area of research focus. This will involve exploring the potential of technologies like PEEK, a type of plastic known as Polyetheretherketone, and metal 3D printing to create implants for specific medical procedures such as surgical repair of a bone defect in the skull and reconstruction of the bones surrounding the eyeball.

Similarly, the feasibility and infrastructure requirements for setting up implant printing capabilities will be thoroughly studied to ensure efficient and effective implementation.

4. Additive Manufacturing Technology Landscaping for Healthcare Applications

Reviewing and enhancing the additive manufacturing technology landscape specific to healthcare 3D printing involves identifying and developing potential applications with clinical significance, such as food printing and flexible electronics for medical monitoring devices.

The focus is on cultivating capabilities and methods to translate these innovative applications into practical healthcare use cases, aiming to integrate advanced 3D printing technology into diverse medical needs.

Source: SGH website

NEW DEVELOPMENTS

MORE ACCURATE RISK-ASSESSMENT TOOL ENSURES FEWER COMPLICATIONS

When a surgery is scheduled, tests and investigations are ordered to assess the patient's fitness and risks in undergoing the procedure.

What medical conditions does the patient have? Will they affect his risks during the operation and how he recovers from it? Is the procedure major or minor? Is he likely to face complications and will he then need intensive care (ICU) post-surgery? Is an ICU bed available at the time?

Associate Professor Hairil Rizal says that CARES-ML can do what no human can. "The beauty of AIis that it can trawl through large amounts of data within a few seconds."

To ensure accuracy and consistency in pre-surgery assessment of patients, Singapore General Hospital (SGH) began using an intelligent calculator known as CARES-ML (Combined Assessment of Risk Encountered in Surgery – Machine Learning) for all surgeries in June 2023. CARES-ML is an enhanced version of an earlier tool, CARES, developed in 2017 using artificial intelligence (AI) to collect and interpret data from 100,000 SGH patients.

All data from the patient's pre-surgical assessments are added into the tool, which then calculates his risks and generates a report that includes a risk score. The higher the score, the greater the risk of a negative outcome with surgery.

"We have a 90 per cent certainty that the AI engine will be able to tell whether the patient needs ICU, a very important factor. Similarly, we have 83–86 per cent accuracy in predicting 30-day mortality (whether the patient will die within 30 days after surgery)," said Associate Professor Hairil Rizal, Senior Consultant, Department of Anaesthesiology, SGH. "CARES-ML is a human-in-the-loop system, where humans are involved in both the training and testing stages of building an algorithm. It does not make the decision, but provides decision support. The final risk assessment is made by the clinician based on his professional judgment."

As with most other AI engines, added Assoc Prof Hairil, the tool keeps on learning. "Over time, as new data come in, the tool becomes more and more accurate," he said.

Every surgery carries some degree of risk. Of the more than 300 million major surgeries performed around the world annually pre-COVID-19, 17 per cent developed one or more complications. Knowing the risks lets the medical team consider ways of mitigating them or even to postpone the operation.

At SGH, patients scheduled for surgery are assessed by the anaesthetist and surgeon about 10 days before surgery. This allows the medical team to give the patient appropriate interventions if needed. Patients assessed as low-risk can typically proceed to surgery, while efforts are made to search for modifiable risk factors and optimise them for low-moderate, moderate-high and high-risk patients.

Patients with anaemia, for instance, have an increased risk of complications — including infection, stroke or kidney injury — but may not be aware of it. When anaemia is spotted early, patients can be treated for it. For patients in the higher risk categories, it may be necessary to consider less invasive surgical alternatives like keyhole, nonsurgical options, or to postpone the surgery if an ICU bed is unavailable.

Just before surgery, the patient is assessed again, with the latest health data — test results, feedback from patients and families — added into the calculator tool. Applying their own experience and expertise, doctors can then adjust the risk score up or down. "The beauty of AI is that it can trawl through large amounts of data within a few seconds. No human can do that," said Assoc Prof Hairil.

Being able to accurately predict whether ICU will be required means better management of costly ICU resources. Patients who need ICU but were not assigned to one may experience suboptimal outcomes, while identifying those who do not need it frees up the resources for others. Following the risk calculation for 30-day mortality and ICU needs, the team is using the same engine to develop estimates for other complications, such as heart attack, respiratory complications and kidney failure.

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NEW DEVELOPMENTS

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While many predictive ML models developed worldwide have demonstrated excellent accuracy, conclusive studies are still lacking on how their deployment in real-world healthcare systems actually improves patient outcomes or the value of clinical care provided, said Assoc Prof Hairil.

SGH, thus, will be conducting a randomised control trial on the Impact of Machine Learning-based Clinician Decision Support Algorithms in Perioperative Care (IMAGINATIVE Trial) on 9,000 patients to assess the impact of CARESML deployment on healthcare outcomes such as complication rates, mortality and ICU utilisation. The study is funded by the National Medical Research Council, and its findings are expected to be ready by 2026.

Source: SGH website

NEW TREATMENT FOR OBSTRUCTIVE SLEEP APNOEA

An implantable pulse generator to help keep the airway open is now available in Singapore for patients with obstructive sleep apnoea.

The standard therapy for obstructive sleep apnoea (OSA) is to use a continuous positive airway pressure (CPAP) device to keep the airway open and breathing regular. But the CPAP machine is uncomfortable and needs to be worn for at least four hours every night. A new treatment offers promise — a tiny implant that works much like a pacemaker to deliver mild stimulation to keep the airway open, providing sufferers uninterrupted sleep during the night.

OSA often affects older or heavier people with weaker or slacker throat muscles, which can relax too much when breathing during sleep. As a result, the airway narrows or closes, hampering breathing for a few seconds, rousing the person from sleep. "Hypoglossal nerve stimulation (HGNS) therapy is a good complement and alternative to other treatment options because it is the only procedure that addresses the issue of weak muscles in patients' airway, to allow them to breathe during sleep," said Dr Shaun Loh (pictured, below), Consultant, Department of Otorhinolaryngology – Head & Neck Surgery, Singapore General Hospital (SGH). "This is a real game changer in that it is a minimally invasive procedure that is a good alternative to CPAP. It has been proven to reduce breathing interruptions and improve daytime functions. Patients have reported that they are able to comply to the use on a nightly basis."

The HGNS treatment consists of a programmable neuro-stimulator in the chest, connected to a pressure-sensing lead to detect breathing, and a stimulator lead to mildly stimulate the tongue nerve. Patients undergo surgery — lasting about two hours — to implant the stimulator or pulse generator about the size of three 50-cent coins in the chest just below the collar bone.

Once the device is activated by the patient using a remote control, the stimulation of the airway occurs in sync with the patient's breathing. Whenever the patient breathes in, the tongue is pushed forward and the airways open. Patients turn on the device before going to bed to gently stimulate the throat muscles while sleeping.

Introduced by the department and SGH's Sleep Centre in May 2022, the new treatment was first performed on a patient on 27 May 2022. Since then, more than 20 patients have undergone the treatment.

HGNS has been available in the US and Europe since 2014, with more than 40,000 patients having been implanted with the device, and 150 studies published on its efficacy. *A New England Journal of Medicine* study reported that the device was just as effective at the five-year mark as at the time of implant.

HGNS therapy is a good complement and alternative to other treatment options for OSA, say Dr Shaun Loh and Assoc Prof Toh Song Tar (above), Senior Consultant and Head, Department of Otorhinolaryngology – Head & Neck Surgery, SGH.

Good sleep is needed for brain performance, mood and health. Not getting enough quality sleep increases the risk of diseases and disorders from heart disease and stroke to obesity and dementia. Worldwide, 6–17 per cent of the adult population have at least moderate OSA, while one in three Singaporeans are estimated to suffer from the disorder.

A common but potentially lifethreatening disorder, OSA tends to affect more men than women, and people with a large neck, low-lying soft palate, enlarged tonsils and small jaw with receding chin. Patients can benefit from lifestyle changes such as weight loss and good sleep hygiene. However, for many patients, these lifestyle changes alone are insufficient.

Source: SGH Website

FELLOWSHIPS & INTERNATIONAL COLLABORATIONS

Dr Emmanuel Angelo S. Nerit from Philippines shares his fellowship experience in SGH, Department of Orthopedic Surgery, Sports and Arthroscopic Surgery

What was your impression of Singapore's healthcare industry?

Its reputation as one of the world's best healthcare system lives up to its name. During my first month of training, I was very impressed with how efficient the healthcare flow and the quality of care that Singapore provides to its citizens. It's truly remarkable and I hope the system will continue to flourish in the coming years especially recovering from the pandemic.

Are there any differences compared to the healthcare industry in your country?

The main reason that I was very impressed with Singapore's healthcare industry, is that I grew up in a third world country wherein there are many laws in the current system. Particularly in the field of Orthopaedics. In my experience, the accessibility to insurance coverage in my local setting is very far from its readily available nature in Singapore. Many people in my country particularly those in the public/government hospitals have to process several requirements that takes time before being approved assistance as compared to SGH, particularly in the field of Orthopaedics.

Why did you choose to apply to Singapore/SGH for your attachment?

I chose to apply in SGH because of its reputation as being one, if not the best Orthopaedic Hospital in Singapore particularly in my field of interest, Arthroscopic Surgery and Sports Medicine. Its faculty particularly my mentors Professor Denny Lie, Professor Paul Chang, Professor Andrew Tan and Dr Kong Hwee Lee are all the living testament of the quality training that I can experience during my application in SGH.

Dr Emmanuel Angelo S. Nerit and the rest of his colleagues.

Did you face any difficulties (e.g. culture, language) during your attachment? What were they?

In my experience, the distance of the condominium unit that I was able to rent in the entire duration of my training which is located in Sengkang. It takes me roughly an hour of travel time going to, and from the hospital. It is sometimes very difficult to stand in the train after performing surgery the whole day and my entire lower extremity is swollen.

During your attachment, what was a 'typical' day like?

My typical day begins at 5:30am waking time, followed by a quick coffee and workout for at least an hour. Since I live at Sengkang, I have to be going around 6:30am to be able to reach the operating theatre at 7:45am where I would stay the whole day and try to participate and learn on several surgeries on my field of training (Arthroscopic Surgery). Cases would typically end at around 6-7pm which is perfect for dinner (My favourite part of the day), where I would try to explore and taste new dishes recommended by my local friends in the OT.

What were your learning experiences?

Most of learning experience is in doing shoulder and knee arthroscopy, which is still a growing field in my country. I was able to appreciate what can be applied in my local hospital that can greatly serve my countrymen.

How has the attachment made an impact on you?

The main impact of my attachment is being able to know world renowned professors and being able to witness first-hand how they do their surgical cases and treat their patients. Another impact of the attachment to me is also learning the culture of Singapore at the same time as my training, understand its people and appreciate more its history

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FELLOWSHIPS & INTERNATIONAL COLLABORATIONS

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Do you have any interesting/memorable experience during your attachment that you would like to share?

For my entire training duration, I was quite lucky to be able to participate in some remarkable events in my department namely, 1.) AO Recon Course (Complex Total Hip and Knee Replacement) 2.) Advanced Shoulder Specialty Workshop 3.) Innovative solutions in Biceps Pathology and Shoulder Instability Workshop 4.) 44th annual Scientific Convention of the Singapore Orthopaedic Association and lastly 5.) I was able to participate in the Singapore Marathon!

Dr Emmanuel Nerit and his well deserved medal.

What did you enjoy most during your attachment?

The main thing that I enjoyed most during my attachment aside from the training, is to experience the culture of Singapore and be part of some of its traditions. The people whom I was able to meet and build friendship with is truly the most memorable part of my attachment and I hope that even though I'm back here in the Philippines, occasionally, we will still have time to communicate and catch up with each other.

Would you recommend SGH to interested fellows? Why?

Most definitely because of the quality of training, its proximity to the Philippines and the people (staff) who taught me about the culture of Singapore.

How would you describe your fellowship experience in 3 words?

Dream into Reality.

WELCOME!

We welcome our new Alumni Members:

Name	Specialty	Country
Webber Chan	Gastroenterology	Singapore

TELL US WHAT YOU WANT!

We are always looking for ways to improve and engage our alumni members. If you have any suggestions or ideas for newsletter contents or alumni events, know anyone who would like to contribute to the newsletter, please let us know! Email your suggestions and contributions to alumni@sgh.com.sg

UPCOMING EVENTS

Jan 2024

10TH **SGH Lunchtime Q+A with GPs**

Presented by Dr Bryon Teo Jun Xiong, Department of Orthopedic Surgery SGH
Dr Kristen Alexa Lee, Department of Vascular & Intervention Radiology SGH

17TH **GPCME Webinar: Nuclear Medicine***

31ST **GPCME Webinar: Urology***

Feb 2024

7TH **SGH Lunchtime Q+A with GPs**

Presented by Dr Brenda Sim, Department of Otorhinolaryngology–Head and Neck Surgery, SGH
Dr Eugene Lim Kee Wee, Department of Upper Gastrointestinal & Bariatric Surgery,

21ST **GPCME Webinar: Hand and Reconstructive Microsurgery***

24TH **GPCME Webinar: SGH Orthopaedic Surgery***

Mar 2024

13TH **SGH Lunchtime Q+A with GPs**

Presented by Dr Dr Shannon Nicholas Brian, Department of Head & Neck Surgery, SGH
Dr Dr Irene Mok Yanjia, Department of Renal Medicine, SGH

20TH **GPCME Webinar: Sarcoma Peritoneal and Rare Tumours (SPrinT*)**

*Please refer to our website https://www.sgh.com.sg/pgmi for events updates.

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