

ISSUE 16  
MAY - AUGUST 2020

SingHealth DukeNUS  
ACADEMIC MEDICAL CENTRE

SURGERY

# NEWSLETTER SurgeOn



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# UNITED IN COVID-19 FIGHT

Our healthcare community has always come through strong in a crisis.

The 2003 SARS epidemic was the first national disease outbreak for a whole generation of healthcare workers. As a community, we stepped up when asked to serve. Tragically, we lost some good men and women in the course of duty. In retrospect, we were not at all prepared for SARS. It was a wake-up call – and a painful lesson. And so in the decade that followed, we completely revamped our disease outbreak policies and processes.

Now, 17 years on, COVID-19 has struck. At the time of writing, we have more than 50,000 confirmed cases in Singapore. The healthcare community was called upon to lead the national fight against the pandemic. Once again, we are proving our mettle but, this time, we are much better prepared.

At the beginning of the pandemic, the surgical community faced the challenge of continuing essential critical surgical services while answering the call to join our medical colleagues in the battle against COVID-19. In SGH, we took steps to mitigate the impact of the pandemic and to ensure service continuity and staff/patient safety. We implemented measures to

## 1. Reduce potential risk of transmission to and between healthcare workers

At the start of DORSCON Orange, the general surgical teams in SGH were split into Hot and Cold teams:

- The Hot (the acute care surgery) team - Handled all the patients with acute surgical conditions admitted through the Emergency Department (ED)
- The Cold team (comprising the rest of the sub-specialty departments) - Managed patients requiring elective surgery that was time-sensitive such as oncologic surgery

To reduce the risk of cross-contamination, both the Hot and Cold teams were sub-divided into the smallest possible functional groups. Interactions and crossover of staff between each group were minimised.

PPE and hand hygiene measures were strictly adhered to. In contrast to many healthcare systems outside Singapore, we are fortunate that Singapore was never short of PPE for our medical staff. This, coupled with other infection prevention measures such as safe distancing, are the main reasons why, despite the large number of COVID patients, the number of healthcare worker transmissions is thankfully low. This is in sharp contrast to the SARS outbreak in 2003.

## 2. Mitigate the triple resource shortage

We needed to manage the 'unholy trinity' of shortages in beds, manpower and operating facilities. A significant number of general deployable beds were converted into isolation beds to cope with the influx of suspected or COVID-positive patients. At the same time, between 10% to 20% of the surgical workforce (doctors, nurses and allied health professionals) were re-deployed to COVID-specific roles. On top of that, part of the Ambulatory Surgical Centre was re-zoned as a fever-screening area and three operating theatres (OTs) were designated as isolation OTs for COVID-positive or suspect patients.

To conserve as many resources as possible to cope with these shortages, the surgical teams undertook decisive cuts in our non-oncologic elective surgical workload and specialist outpatient clinic sessions which led to reduced manpower and OT consumption.



**Assoc Prof Tan Hiang Khoon**

Academic Chairman, Surgery ACP  
Chairman, Division of Surgery and Surgical Oncology, SGH & NCCS

We deployed about a third of our surgical workforce to manage acute care surgery – a three-fold increase from pre-COVID times. This led to shorter turnaround time for patients who required acute surgical services; the average length of stay of surgical patients admitted through ED was significantly reduced from 5.2 to 3.8 days. This, in turn, helped to free up more beds for COVID and other suspect cases.

## 3. Optimise OTs

SGH campus implemented a 120-hour free access OT policy during the circuit breaker. Under this policy, all allocated OTs are commandeered into a common pool at 120 hours prior to operation day. Any unused slots are then made available to surgeons on a first-come-first-served basis. This helped SGH mitigate the loss of OTs to isolation facilities. In fact, there was an increase of OT utilisation from 81% during pre-COVID times to 86.7% in August 2020. The number of cases performed was 5% higher than the pre-COVID volume. In other words, we have managed more cases despite the reduced number of available OTs. This would not have been possible without the willingness of the surgical community to 'share' their OTs in the common pool.

I am confident that we will get through the COVID-19 pandemic and emerge stronger for it. However, it will require us to stay focused, work together and not be afraid to challenge "conventional wisdom".

After all, we must not let the lessons learned from a pandemic go to waste.

# CHANGING LIVES THROUGH BARIATRIC SURGERY



**Dr Jeremy Tan Tian Hui**

Head & Senior Consultant  
Upper Gastrointestinal & Bariatric Surgery  
SGH & NCCS

As a clinician-leader, I have found great satisfaction and purpose in helping patients with their weight loss and health goals, but misconceptions persist about bariatric surgery. These are surgical procedures performed on the stomach or intestines to induce weight loss. Let me share the truth behind the most common opinions.

## “Bariatric surgery is dangerous.”

About 80-90% of bariatric procedures we do in Singapore are laparoscopic sleeve gastrectomies (LSGs). An LSG takes one to two hours for a 1.8 cm diameter tube to be inserted into the stomach and stapled parallel to the lesser curve of the stomach. The procedure makes the stomach narrow and cylindrical. The ‘excess’ stomach is removed.

Mortality is about 0.1%, similar to a gallbladder operation. It is a safe and effective procedure, with fewer side effects now versus in the past.



## “It doesn’t work.”

Patients generally see very good results, losing between 50% to 80% of their excess body weight – about 20 to 40kg. Crucially, unlike older bariatric procedures, with LSG most foods can be savoured, just in smaller amounts.

An LSG alters stomach size and tricks the body into feeling full quickly due to a hormone signalling function. This can affect a patient’s family members in interesting ways, often centred around food, home life and close relationships.

I recall a young lady who underwent LSG successfully, whose mother accused her of not liking her cooking anymore and that she was ‘malnourished’. The poor girl simply could not physically eat her usual amount, but had trouble getting this across to Mum. So I played counsellor to them to explain things. There’s a lot of work like this in this line, and this example is quite archetypical of our patients’ experience.

## “It’s a cosmetic procedure.”

Far from it. Bariatric surgery has been proven to both prolong and improve the patient’s quality of life, by reducing the impact of chronic co-morbidities, cancers associated with obesity, or reducing reliance on medicines and hospitals.

Generally, qualifying patients are those with a Body Mass Index (BMI) over 37.5 without weight-related co-morbidities, or those with a BMI between 32.5 to 37.5 and weight-related co-morbidities such

as type 2 diabetes, hypertension and dyslipidaemia. Even so, they must first undergo a medically-advised weight loss programme for six to 12 months. About 95% of them fail here, but this step is required. Not an easy option!

## “Obese Patients Have Only Themselves to Blame.”

It is unfortunate that obesity is stigmatised in society. What we know is that some patients are genetically just very good at storing calories from their food. Perhaps this was a survival advantage for our ancestors, but no longer!

## Looking ahead

There are a couple of areas we are looking at to make bariatric procedures increasingly less invasive.

One is endoscopic sleeve gastroplasty, where we plicate the stomach internally. While not as effective as LSG, it means no cuts to the abdomen. This is very popular in the Middle East among women who don’t want scarring.

Another is an intra-gastric balloon, delivered endoscopically. Patients literally just swallow a balloon, we infuse it with saline and detach it, reducing the capacity of the stomach. It has a lifespan of four months, and is passed out safely from the body thereafter. A patient could ingest a balloon every few months, so to speak.

In all things, we must keep patient safety and good outcomes in mind. I remind the team that if we see something not right, we must speak up, rather than sweeping things under the carpet. This field has a lot of potential as we are currently only helping about 1% of those who could benefit. Our patients experience results that are often profoundly life-altering, and this keeps me and the team motivated.

# PUSHING BACK THE FRONTIERS OF MEDICINE

The 2018 Nobel Medicine Prize was awarded to immunotherapy cancer research with the discovery of checkpoint receptors (CTLA4 and PD1). Since then, there has been a resurgence of interest in immunotherapy as the fourth pillar of cancer therapeutics besides surgery, chemotherapy and radiation therapy.

Immunotherapy looks at how to harness our own immune system to treat cancer. Although cancer immunotherapy research was first tried about 20 years ago, results were not very promising back then.

In Singapore, NCCS' Assoc Prof Toh Han Chong's team has led some clinical trials looking at adoptive cell therapy to treat Nasopharyngeal Cancer (NPC). NPC is a common head and neck cancer in Singapore.

My NPC research focuses on how this cancer is able to evade the immune system; and understand how we can identify the clones of the immune cells in NPC patients that are reactive against the cancer. Identifying these clones of immune cells will allow clinicians to grow them in the lab and re-invigorate them to recognise cancer cells. The next step is to infuse these "killer" cells into the patients to hunt cancer cells and eradicate them.

Current immunotherapy treatment is focussed on treating patients who had failed prior cancer treatment. In NPC patients who are at high-risk of relapse, we are also looking at how we can introduce immunotherapy options earlier, in order to minimise the risk of cancer relapse.

Despite advances in head and neck cancer treatments, doctors are still

puzzled as to why there are very different outcomes for patients treated uniformly in established treatment protocols. I am motivated by the need to find the answers to these observations through a deeper understanding of how a patient's immune system may account for these observations.



This is why I feel encouraged and motivated by the National Medical Research Council Clinician Scientist Award. This award allows me to practise as a surgeon, while giving me protected time to do my immunotherapy research in NPC.



**Associate Professor Lim Chwee Ming**

Duke-NUS Medical School  
Senior Consultant, Otorhinolaryngology  
Head & Neck Surgery, SGH & NCCS

I believe that the Clinician Scientist Award is a good scheme to develop clinician scientists in Singapore. In our practice, we may come across clinically relevant questions. Research can help us find answers to these clinically relevant questions.

My interest in research was sparked during my residency training. My interest grew quickly after attending international meetings and appreciating how research could advance patient care.

This is why I took the plunge to do research right after I completed my residency. I did a two-year fellowship at the University of Pittsburgh Medical Center; and spent a year in cancer immunotherapy research in head and neck cancer under Professor Robert Ferris.

For surgical residents considering the dual track of surgeon scientists, I would suggest that you get well-trained professionally first. Do spend time in the laboratory to explore if benchwork research is something that you are keen to work on in your speciality. Having a scientist mentor to equip you with the research mindset and skills is also helpful.

The clinician scientist role is critical because it bridges gaps in science to translate and transform clinical care of patients. While the surgeon scientist track is strenuous, it is equally fulfilling when we can advance the frontiers of medicine and define new paradigms of disease treatment.

## MAJOR NEWS

# SENGKANG GENERAL HOSPITAL'S (SKH) DEPARTMENT OF SURGERY (GS): RESPONSE AND CONTRIBUTIONS TO COVID-19

Dr Lester Ong  
Associate Consultant, Surgery, SKH

In late January 2020, a department-level task force was formed to look into infection prevention and control measures for COVID-19 and business continuity plans to ensure that the core business of the department is not affected even as we lend support to the fight against COVID-19. Led by Associate Prof Chew Min Hoe, the task force consists of seven other Consultants and Associate Consultants from various acute care teams.

The Department of Surgery in SKH consists of four general surgery acute care teams and two subspecialty teams (vascular surgery and plastic surgery). Bringing expertise from different subspecialties, each acute care team manages patients who are admitted on their calls with minimal need for transfer of care.

With the increase in COVID-19 community transmissions, there was a need to put into place safe distancing and segregation measures at the workplace. The department adopted a split-team model, where each team was divided into two sub-teams reporting for duties on alternate weeks. Each surgeon would go on call or operate on their elective cases only during the weeks they were on duty ("hot" weeks), while their weeks off duty ("cold" weeks) were dedicated to running outpatient clinics and helping out in COVID-19-related activities. An example of a typical two-week cycle can be seen in Table 1 below.

	"Hot" week	"Cold" week
Monday	On call	Clinics
Tuesday	Post call	Clinics
Wednesday	OT	
Thursday	Endoscopy	Clinics
Friday	Endoscopy	

Table 1: example of a two-week work cycle of a surgeon in SKH GS

While reducing the risk of virus transmission between teams, this model also ensured that the core businesses of the department, such as acute admissions via the Accident & Emergency Department (A&E), inpatient referrals, emergency surgeries and cancer surgeries were not compromised. While in split-team mode, the acute care teams are paired (Team A with B, and Team C with D) so that there is adequate subspecialty cover between the two teams.

Figures 1 and 2 illustrates the elective and emergency operating theatre and endoscopy workloads performed by the department since the beginning of the year. Major events, such as the escalation of the Disease Outbreak Response System Condition (DORSCON) to Orange and the start of the Circuit Breaker (CB) period are represented as well. Red bars represent the number of emergency cases performed by the department in the week, while blue bars represent the number of elective cases. The green line graph represents Operating Theatre (OT) utilisation. While we have decreased the number of elective cases in compliance with CB measures, the weekly number of emergency cases was maintained and care has not been compromised. OT

utilisation has also improved during this period as the number of OTs used was reduced and surgeons share and optimize the use of available OT space. The same trend can be seen in the endoscopy workload.

Video conferencing was widely adopted for department-level activities such as Mortality & Morbidity (M&M) meetings, journal clubs and grand rounds. Two separate rooms with the necessary audio-visual equipment were set up for each activity and were used by the junior doctors, who sat at least one metre apart with their masks on. Senior doctors joined in via video conferencing apps such as Zoom or Webex from their offices.

The split-team measures also created some "free" days for the surgeons, which they used to volunteer at the migrant worker dormitories or community isolation facilities. In total, the department has participated in more than 10 deployments to the dormitories to assist with COVID-19 swabs and serology. In addition, the department's medical officers were redeployed to help out in A&E as well as the Intensive Care Unit (ICU). Two of our medical officers also volunteered to help out at the National Centre of Infectious Diseases (NCID) with doctors from other institutions. A total of five medical officers (or about 30% of our medical officer pool) have been deployed for COVID-related work daily. Below are some pictures of our deployments at the S11 dormitory.

COVID-19 is the greatest challenge that our young department has faced so far and there is still a long fight ahead of us. However, we have responded swiftly and strongly to it by dividing our teams to manage both the core businesses of the department as well as provide support to other departments in the fight against COVID-19.

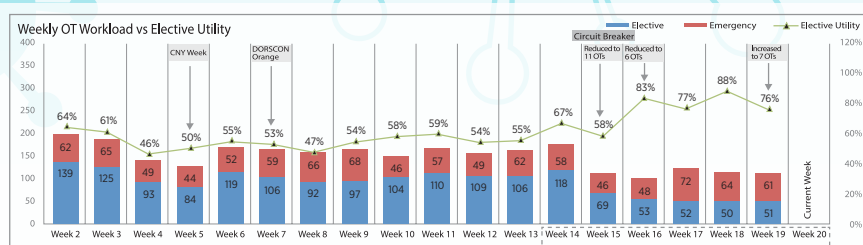


Figure 1: weekly OT workload

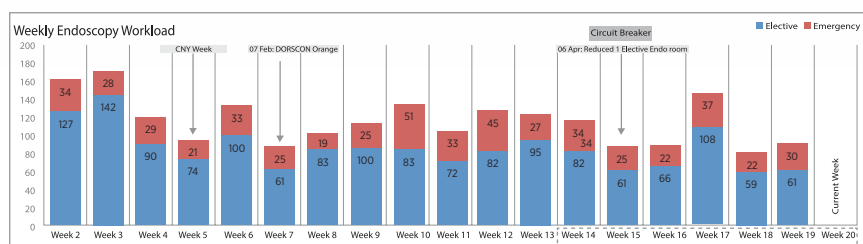


Figure 2: weekly endoscopy workload

## MAJOR NEWS

# AN ENHANCED ACUTE CARE SURGERY (ACS) SERVICE

## AT SINGAPORE GENERAL HOSPITAL (SGH) DURING COVID-19

Dr Sachin Mathur  
Senior Consultant, General Surgery, SGH & NCCS



In 2016, SGH embarked on a new model of care for emergency general surgical and trauma patients, which led to the creation of the Acute Care Surgery (ACS) service. A weekly consultant-led team managed ACS patients with minimal conflict with their elective duties, leading to improved efficiency of care (reduced length of stay, costs) and clinical outcomes (mortality, 30-day re-admission rate).

When Singapore's first COVID-19 case presented in January, SGH adapted the ACS service to address two issues:

**1** Minimisation of staff/ patient cross-infection

Sustainable 24/7 care

**2**



ACS Senior Team: Dr Wong Ting Hway, Dr Brian Tian, Dr Sachin Mathur, Dr Jeremy Ng, Dr Beatrice Koh

A modified service (eACS) was conceived, dividing the existing service into five teams, with each team participating in a rolling 1:5 24-hour call separating hot (eACS) and cold (elective). Manpower augmentation at all levels was provided by each sub-specialty. Compared to 2019, we achieved the following:

1. No staff/patient COVID-19 cross-infection
2. Further reduction in mean length of stay by 2-days and cost savings of over \$200,000.
3. Further efficiency gains in reductions in time from arrival to admission via the emergency department, time from admission to surgery and from surgery to discharge.
4. Ward-round times decreased by 35% as the majority of patients were admitted to an eACS ward (57/58).
5. A staff survey suggested the majority of staff (>90%) enjoyed working in these teams and felt appreciated for their work. Almost all surveyed participants felt the design provided adequate protection from COVID-19. More than 75% of staff felt that work-life balance was improved under the eACS system.

link to paper: <https://doi.org/10.1016/j.injury.2020.06.040>  
Mathur et al Injury, 2020

There have been subsequent changes to the system due to dormitory and isolation facility deployment. The service now operates four teams in a rolling 1:4 24-hour call. We also anticipate that support from our sub-specialty colleagues may not be sustained once elective services resume. However, we are committed to providing an ongoing sustainable model of care for ACS patients.

On July 4<sup>th</sup> 2020, we unexpectedly lost our beloved Head of Department and colleague, Dr Jeremy Ng. Jeremy was the guiding light for ACS in SGH - he approached me with the idea of creating the service and worked tirelessly to bring it to fruition. Without his determination, effort, collegial spirit and unrelenting kindness towards juniors and colleagues, the ACS service would not have been established. We owe him a great debt of gratitude and are committed to carrying on his legacy to provide the best care for all emergency GS and trauma patients.

# INTERVIEW WITH DUKE-NUS MEDICAL STUDENT ON COVID-19



Harry Ng Ho Man is an incoming house officer who has just graduated from Duke-NUS Medical School. He was a mentee of Associate Prof Lee Ser Yee and has published journals on liver cancer in the past few years. He was the vice-chairman of the Surgery Interest Group (SIG) in Duke-NUS and was also a co-director of Camp Rafiki, a student-led camp which collaborates with the Singapore Cancer Society (SCS) and KK Women's and Children's Hospital (KKH) to provide support and mentorship for children who have first-degree relatives with cancer.

## Q What are your thoughts on becoming a House Officer in June?

**A** I cannot believe this is the end of medical school! It seems like 4 years have passed so quickly and I have learnt so much from my mentors in the wards. I am glad to have this opportunity as it has been an eye-opening experience. COVID-19 has changed some of our practices in the wards which everyone is still adapting to. It's daunting but exciting to be a house officer in these times.

## Q Are you mentally ready after the Student-In-Practice (Surgery)?

**A** There have been many changes in the last two months due to COVID-19, but at the same time, much has stayed the same. We are still able to learn from patients and work on administrative matters. Our mentors, especially Mr. Ho from our team, have been very supportive, and our medical officers and house officers Drs Sabrina, Stephen, Isuru, Yao Jie and David have given us many opportunities to learn on the job. We are grateful to have them as our mentors.

## Q How has COVID-19 changed your perception on medical practice?

**A** COVID-19 is not something that I expected, at least not on this scale, but I still remember how healthcare heroes inspired me during the time of SARS. There is a certain fear of the unknown, but as an aspiring surgeon, I believe that challenges make us stronger. I am sure our batch of graduates will come out of PGY1 invigorated and raring to go on our new journeys as house officers.

## Q What are some of your coping mechanisms during this challenging period?

**A** My batch mates, friends and loved ones are my pillars of strength in these past few months. We are in this together and continue to spur each other on in our daily work. Although I have not been able to see them in person during the circuit breaker period, their encouragement has been a great motivation for me. My family, albeit being a little afraid for my safety, has also been supportive throughout.

## RESEARCH NEWS

# RESEARCH AWARDS

## National Medical Research Council (NMRC)

NMRC oversees the development and advancement of medical research in Singapore. NMRC's mission is to promote excellence in translational and clinical research; nurture a vibrant research community of clinicians and enhance knowledge translation for better health and economic outcomes.

### Clinician Scientist Award 2019



**Dr Lim Chwee Ming**

Senior Consultant,  
Department of Otorhinolaryngology –  
Head & Neck Surgery, SGH & NCCS

### Clinician Innovator Development Award 2019



**Dr Ng Tze Kiat**

Senior Consultant,  
Department of Urology,  
SGH & NCCS

## Nurturing Clinician Scientist Scheme (NCSS) FY2020 Cycle 1

The scheme helps young clinicians within SingHealth Duke-NUS Academic Medical Centre (AMC) gain competencies and experience to prepare them for external research grant application and embark on a sustainable research career.

### Clinician-Innovator (CIN)



**Dr Edwin Jonathan Aslim**

Associate Consultant, Department of  
Urology, SGH & NCCS

### Clinician-Innovator (CIN)



**Dr Chua Jian Kai Andy**

Associate Consultant, Department of  
Otolaryngology, SKH

## Surgery ACP Seed Grant 2020

The aim of the Surgery ACP Seed Grant is to encourage exploratory and developmental research projects in Surgery ACP by providing support for early and conceptual stage research.

### Budding Researcher



**Dr Vanessa Tan  
Yee Jueen**

Consultant,  
Department of  
Otorhinolaryngology –  
Head & Neck Surgery,  
SGH & NCCS



**Dr Koh Hong  
Xiang Frederick**

Associate Consultant,  
Department of  
General Surgery, SKH



**Dr Darius Aw**

Registrar,  
Department of General  
Surgery, SKH

### Open Category



**Dr Lim Chin Hong**

Consultant, Department of Upper GI/  
Bariatric Surgery, SGH & NCCS



**Dr Wong Si Min Jolene**

Associate Consultant, Department of  
SPRINT, SGH & NCCS

### Open Category (Medical Innovation)

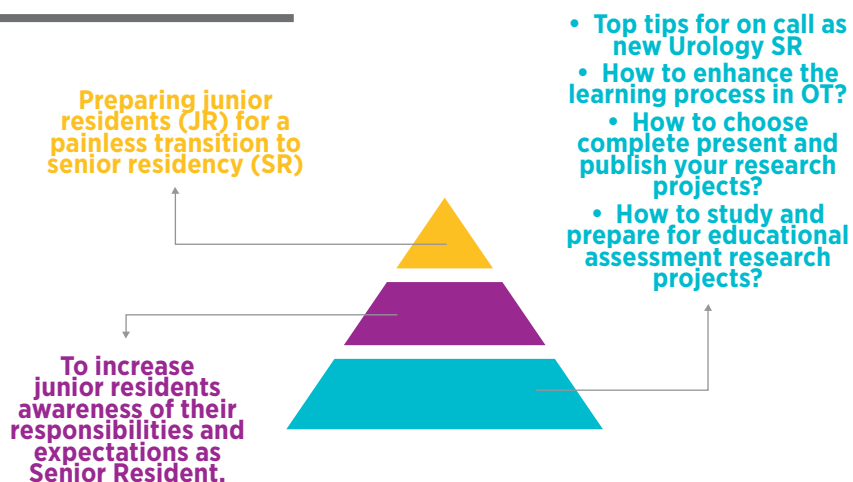


**Dr Xu Shuhui**

Senior Resident, ENT Residency, SingHealth

## RESIDENT'S CORNER

# NEW NORMAL @ DIGITAL PLATFORM 3<sup>RD</sup> UROLOGY RESIDENCY BOOTCAMP AMID COVID-19



## Residents' FEEDBACK:

### Q: What are your impressions after attending the bootcamp?

'Online learning via the Zoom platform is a very feasible and plausible alternative to physical learning.'

"A useful session on the practical issues on the ground, which cannot be learnt from the textbook or the internet".

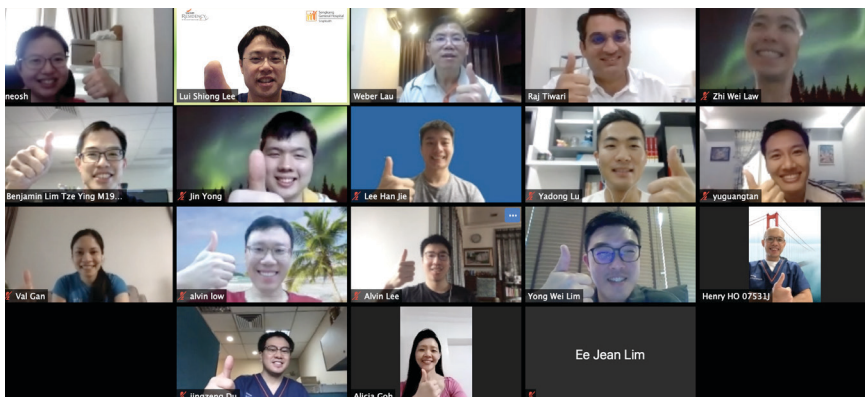
"It is important to keep this Bootcamp because it provides an early overview of the transition, and allows a whole year of R3 to adapt and gradually step up under close supervision"

### Q: What are the new things that you have learnt from the bootcamp?

"How to prepare yourself for OT sessions and how to manage time effectively as a senior resident. Session on how to study for exams was also informative"

"This Bootcamp reminded us that all the residents are a cohort together, and we have to help one another to get through training".

"The Bootcamp was very informative, as the different SRs have highlighted many of the pertinent aspects to aid us JR to transit smoothly to an SR".



## INTERVIEW WITH A GS RESIDENT WHO HAS VOLUNTEERED TO GO TO NCID / FW DORMS OR IS WORKING IN EMERGENCY

Dr Edwin Yang



Left to right: Dr Edwin Yang, Dr Tousif and Dr Vera

As a surgical resident, my interaction with coronavirus is limited compared to my medical colleagues. Seeing how friends and seniors stepped forward inspired me to do more with my training. I heard being at the dormitories was tough due to the warm weather outdoors and the PPE we don, on top of the risks that we face as we go into these "hot zones". However, I recalled that courage is not an absence of fear but how we overcome it, even as we take risks. Though I only volunteered for a short session at one of the isolation facilities, I left feeling that it was time well spent. It was also humbling interacting with the workers, hearing their stories while easing their anxieties. I hope that as a society, we can all emerge stronger after this storm and look forward to us enjoying bubble tea once again!