SMA news

For Doctors, For Patients

VOL. 52 NO. 4 | APRIL 2020 | MCI (P) 066/12/2019

Healing The World

Doctors fighting climate change

Our Oath to Do No Harm

Strength in Unity Amid COVID-19

We invite Family Medicine Physicians, Resident Physicians and Generalists to join the medical team at Jurong Community Hospital.

The Post-acute & Continuing Care (PACC) team at Jurong Community Hospital (JCH) comprises physicians with postgraduate training in family medicine, geriatric medicine or internal medicine, providing inpatient care to patients that require sub-acute care or rehabilitative care after an acute illness or surgery. The incumbent will work with a multi-disciplinary team of nurses and allied health professionals to provide holistic care to JCH patients. The incumbent will also work in close partnership with community health service providers to enable care-reintegration into the community.

REQUIREMENTS

Candidate must possess a basic Medical Degree and postgraduate qualifications registrable with Singapore Medical Council. Those who have MMed (FM), FCFPS or MMed (Int Med) or other postgraduate qualifications recognised by College of Family Physicians Singapore (CFPS) or Specialist Accreditation Board (SAB) will be considered for Senior Physician or Specialist positions.

JurongHealth Campus is a part of the National University Health System (NUHS) group, serving the community in the western region.

JurongHealth Campus comprises the integrated 700-bed Ng Teng Fong General Hospital (NTFGH) and 400-bed Jurong Community Hospital (JCH) which were designed and built together from the ground up as an integrated development to complement each other for better patient care, greater efficiency and convenience. NTFGH and JCH were envisioned to transform the way healthcare is provided, and together with the National University Hospital, National University Polyclinics, Jurong Medical Centre, family clinics and community partners, to better integrate healthcare services and care processes for the community in the west.

To find out more, please write in with your full resume to:
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Jurong Community Hospital
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Singapore 609606

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We regret that only shortlisted candidates will be notified.

Ng Teng Fong General Hospital

Jurong Community Hospital

SMA news
Vol. 52 No. 4 | 2020

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UEN No.: S61SS0168E

DESIGN AGENCY
Oxygen Studio Designs Pte Ltd

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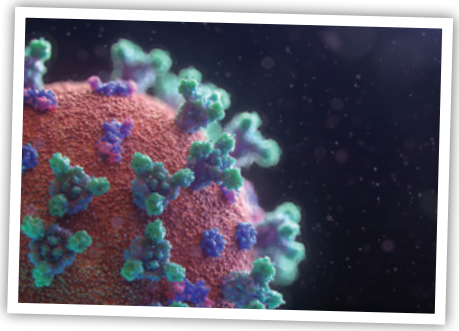

The EDITORS' MUSINGS

Dr Tina Tan

Deputy Editor

Dr Tan is a consultant at the Institute of Mental Health and has a special interest in geriatic psychiatry. She is also an alumnus of Duke-NUS Medical School. Between work and family life, she squeezes time out for her favourite pastimes – reading a good (fiction) book and writing.

Amid the ongoing battle with COVID-19, let's not forget a more insidious enemy – climate change. It is easy to consider climate change as "not my problem" or "not during my lifetime". These are flawed arguments.

Climate change brings to mind things like hotter weather, haze and rising sea levels. Climate change is also related to an increase in existing, and emerging, infectious diseases. All of these spell immediate problems for us, not just for our future generations.

I hope this issue inspires us to take the steps necessary to slow down climate change. One person or one clinic may not accomplish much in the grand scheme of things. But what if everyone made a concerted, united and consistent effort?

At the same time, it is impossible to ignore the elephant in the room – COVID-19 – which is wreaking havoc across the globe. Many of our colleagues have been affected in various ways and we have featured their views in this issue. SMA has been supporting our Members since the outbreak began and will continue to do so.

Please take care, everyone.

A/Prof Daniel Fung

Guest Editor

A/Prof Fung is the father of five grown up children and hopes to be a grandfather to children who have a better world to live in. He drives an electric car and has solar panels in his home. In his spare time, he is a senior consultant at the Child Guidance Clinic and the Chairman Medical Board of the Institute of Mental Health.

Doctors and climate change seem like two entirely different concepts that share no relationship with one another. However, as our cover tagline shows, both concepts have a role in healing. Doctors are facilitators in the healing process and coaches in the marathon of life; we engage our partners, the patients and the population, to embark on a journey for good health together. Climate change is about how our planet needs healing. For too long, we have used the resources on earth to improve our lives without heeding the needs of sustaining this fragile ecosystem.

Can medicine play a part in climate change? We know that climate change affects health and we are seeing many of these effects in changing exposure to temperatures, air pollution, food safety risks, as well as our current issues with emerging and novel infections.

It is always best to consider the issues from a heuristic perspective. I see a doctor's ultimate purpose as saving lives. Borrowing from Bishop Desmond Tutu, we can do this by pulling people out of the river as they are drowning or, more importantly, find out why they are falling in. The first is an example of critical care and acute medicine, which doctors do very well. The second – that of health promotion and illness prevention – is much harder.

Tackling climate change exercises both principles, making sure that we advocate for upstream efforts at sustainable practices (read our Feature article from the Institute of Mental Health Planeteers) and taking immediate steps to reduce waste, recycle as much as we can and reuse rather than discard.

In this issue, we focus on what doctors can do. Some of this we can do immediately, but some require a mindset shift. Let's remember our primary purpose – "First, Do No Harm" – not just immediate harm, but long-term harm to our world and the next generation. ◆

FIRST, DO NO HARM

Have We Been Keeping Our Oath?

Text by Lynn Tan and Vera Chua

Lynn is a clinical psychologist by profession. She relishes in the vulnerable and humbling connections she shares with her clients, nature and other sentient beings she shares this blue planet with. At leisure, she enjoys exploring the oceans and mountains, practising yoga and reading with her dog.

Vera is a senior medical social worker and budding green enthusiast from the Institute of Mental Health. Her systemic orientation contributes to her belief in bringing clients and their loved ones together in joint conversations. For leisure, she enjoys caring for her plants, going for hikes and extending hospitality with her husband to loved ones and strangers in their home.

Riding on the coattails of a fresh email thread titled "Green Committee Kick-off Meeting", a handful of individuals gathered in the psychology department meeting room. Our common purpose was to brainstorm ideas to increase awareness of the urgency of the climate crisis on the hospital campus.

The mantra that anchored our first meeting was to "start small and just get the ball rolling". In conjunction with Earth Day, a week-long's worth of activities swiftly followed to encourage both the staff and public to contemplate their relationship with Mother Earth. This jump-started the green movement many of us had been hoping for within the Institute of Mental Health.

Subsequent activities continued to be offered through 2019, culminating in recent discussions with senior management about larger systemic changes we could implement hospital-wide, beginning with the removal of single-use plastics (see Figure 1).

While the Green Committee comprised of nominated individuals, we prided ourselves as a group that was completely voluntary, made out of a serendipitous mix of psychologists, medical social workers, pharmacists, nurses, administrators and doctors with diverse environmental ideologies. With a common goal to advocate for the planet and shed light on the climate crisis, the members are now referred to as "The Planeteers" within the hospital.

Returning to the heart of healthcare

"First, Do No Harm". While the aged dictum has been subjected to debates over the years, it remains symbolic in medicine, upholding healthcare's principles of non-maleficence and beneficence, and a respect for human rights. Now, what if we told you that we have all failed as healthcare professionals – that we have not been upholding the most rudimentary principle of medical ethics?

Recognising healthcare's significant climate footprint

Ironically, as an industry whose main prerogative is to protect and promote health, we contribute significantly to the present climate crisis. According to a paper published by Health Care Without Harm and Arup in 2019,[1] we are responsible for 4.4% of global net emissions (equivalent to 514 coal-fired power plants). Taken as a country, the healthcare sector would be the fifth-largest emitter on the planet!

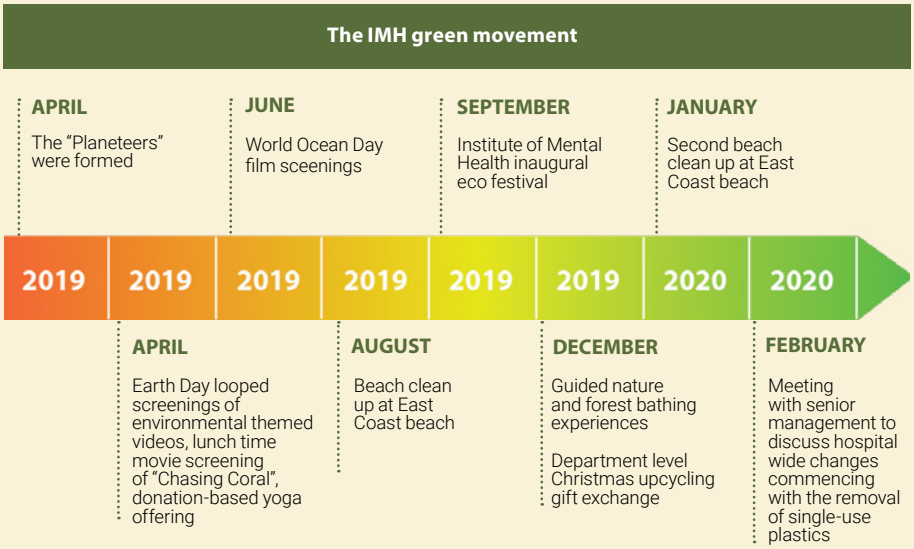

Figure 1. Growth of the green movement and activities organised

At the heart of our emissions is our consumption of fossil fuels, driving more than half of healthcare's carbon footprint across the spokes of energy, transport, pharmaceuticals, product manufacture, purchase, use and disposal. Yes, the same things that are positioned to heal our patients are also contributing to the pathway leading to their demise.

The impacts of the climate crisis on human health

Our dependence on fossil fuels is radically changing the natural world and while some may view climate crisis as merely an environmental problem that has distal impact on our lives, *The Lancet* has deemed it the "biggest global health threat in the 21st century".[2]

We have witnessed the ravages of global warming at the turn of the new decade. These include being in the middle of the sixth mass extinction to raging wildfires engulfing Australia resulting in severe impacts on biodiversity, economic and public health;[3] warm spells and record-high temperatures observed in Antarctica since November 2019;[4,5] flash floods in Jakarta in January this year;[6] locust plagues in East Africa in February;[7] and the ongoing COVID-19 pandemic. Frighteningly, we have barely scratched the tip of the iceberg.

Many have declared that Earth is in a state of climate emergency,[8] and the pattern of rising temperatures will continually change our ocean and atmospheric chemistry. This will result in more extreme weather events with accompanying physical and mental health traumas and mortality. We can expect more aggressive spread of infectious diseases which are climate-sensitive or carried by vectors, like cholera, malaria and dengue.[1,9] Higher reports of respiratory and cardiovascular diseases are also expected with increasing air pollution.[1,9] Further, with the invariable impact to agriculture production and access to potable water comes malnutrition, gastrointestinal disorders, the threat of food and water security, migration issues, civil conflict, economic and ecological collapse, and associated long-lasting mental health impacts.[1,9,10]

Climate crisis and human rights

Public health issues aside, the climate crisis is also a magnifier of inequality. Some of Singapore's accolades include being one of the world's richest countries,[11] as well as ranking sixth globally for consumption-based emissions according to the Global Carbon Atlas.[12] The Intergovernmental Panel on Climate Change's carbon target for 2030 is 2.82 tonnes per person. At present, the average Singaporean consumes a whopping 20 tonnes per person, more than four times the present world average. A study conducted by Oxfam[13] reflects that the wealthiest 10% of the global population is responsible for 49% of total lifestyle consumption emissions, while the poorest 50% of the world's population contribute just a mere 10%. It revealed that the effects of the climate crisis impact both the rural and urban poor as well as females more disproportionately, as they often depend on natural resources and climate for income and food, or might live in places that lack the resources and infrastructure to mitigate and manage crises. While Singapore might have the resources to adapt to the climate crisis, a just and moral question ought to be whether we are doing enough as a nation to mitigate and reduce our contribution to the climate crisis.

Our influence and duty as healthcare workers

In this vein, as healthcare workers, our duty surpasses the walls of our clinics and hospitals. Advocating for the health of our patients would also entail being stewards to our environment – the places where our patients reside. Fortunately and uniquely, our voices have been shown to carry weight in our wider community in humanising climate change and spurring effective behavioural change.[2,14]

As individuals and as a profession, we could start by reflecting on our values (eg, health, justice, family and food) and how this is impacted by the climate crisis. The subsequent steps are simple – be mindful about your consumption and speak up about it in your families, teams at work and community (eg, health talks and its relationship with climate change). When done collectively, our voice adds volumes to the severity of climate change and encourages others to emulate.

In our institutions, give voice to and make sustainable practices part of the core values (eg, joining and supporting Global Green and Healthy Hospitals to exchange resources and work cohesively as a sector to advocate for better environmental health). How and what we consume as a sector will cascade down the supply chain and challenge the current status quo and our dependence on fossil fuels; for example, by committing to divesting from fossil

fuel companies and opting for local, sustainable and environmentally conscious businesses. Table 1 provides some practical suggestions (not exhaustive) to get us started.

Collectively as a sector, we need to increase our dialogues with government representatives starting with Members of Parliament for where we reside and work, and local climate change advocates. We need to communicate public health issues related to climate change and call for rapid nation-wide decarbonisation, a rewilding and protection of our natural spaces and biodiversity, funding for climate-related research and collaborations with neighbouring countries to mitigate the climate crisis.

As Martin Luther King Jr once said, "The arc of the moral universe is long, but it bends toward justice." How would you like to use your voice to demand for a just and liveable future for us and our future generations? ◆

	As an individual	As team leads / leaders in your healthcare institution
Food	1. Understand your carbon footprint by using online carbon footprint calculators 2. Explore a diet that reduces meat consumption (ie, reducetarian) 3. Choose local products to minimise carbon footprint	1. Explore dedicating a day of the week to celebrate a plant-based diet (eg, Meatless Mondays) 2. Offer more diverse plant-based options in your canteens and at conferences 3. Partner with environmentally conscious local farms and businesses and be mindful about sources of your imports 4. Consider labelling food items with a carbon and source label to help consumers make an informed decision and to encourage mindful consumption 5. Immediate reward incentives (eg, cheaper prices; rewards cards that chart their carbon savings)
Transport	1. Reduce use of private cars and opt for public transportation, or use electric cars 2. Reduce the number of flights or cruises yearly	1. Consider implementing reward schemes that would encourage reducing use of private cars 2. Reduce carbon offset or explore such schemes when planning for overseas conferences and trainings 3. Explore investing in telemedicine, where appropriate, to improve accessibility while reducing the need for commuting
Energy	1. Turn off your electrical appliances and power sockets when they are not in use 2. Use a fan to keep cool where possible; otherwise, keep your air-conditioning to 25 degrees Celsius and above 3. Choose energy-efficient lighting and appliances	1. Consider performing an energy audit to identify areas to target 2. Keep air-conditioning throughout the institution to 25 degrees Celsius and above 3. Choose energy-efficient lighting and appliances 4. Consider reducing energy consumption during low peak periods at non-essential areas by reducing the number of units operating (eg, elevators and escalators)
Waste	1. Explore choosing zero-waste products where possible (eg, wet market over supermarket, soap bars over liquid soap) 2. Bring your own cup, containers and bag when taking away drinks and food 3. Using packaging as plastic liners instead of plastic bags 4. Composting organic waste and using compost to enrich soil for plants	1. Consider performing a waste audit to identify areas to target (eg, food, plastic and medical waste) and opt for sustainable procurement and waste management 2. Explore implementing Bring-Your-Own (BYO) cutlery/containers/cups to meetings and conferences or use reusable crockery and cups 3. Explore implementing a rewards scheme to encourage individuals to BYO reusable containers/cups 4. Educate each other on living in a circular economy and the six Rs (ie, Refuse single use, Reduce consumption, Reuse everything, Repair before you replace, Repurpose, and Recycle)

Table 1: Practical suggestions on how to move the scale of sustainability.

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CHALLENGES TO BEING A DOCTOR TODAY

Text by Dr Lee Yik Voon

It's tough to be doctors. 医生太难了！

Uncles and aunties love to give all sorts of medical and health advice. They share these with fervor and out of a good heart and intent. Once they are rejected, they will walk off in a fit of anger.

The training of doctors is well known to be rigorous and involves multiple dimensions. This is consistent across all nations. Hence only students with excellent academic results are enrolled.

They need to have a sufficient IQ to tackle all the intellectual challenges thrown at them. Soon after graduation, these newly minted young doctors will be thrown into a real baptism of fire. They will have no time to think of retreat; the only direction is forward and they will discover that this is a profession that they have chosen for life.

Medical knowledge and information is accelerating rapidly and exploding in front of our eyes. Are we able to keep up with these advances in every single field of medical subspecialty? Do we spend all our time playing catch-up, leaving no time for anything else? It is difficult to sacrifice our leisure, our families and loved ones to catch up, and in the process we have all lost a chunk of our ordinary lives.

Patients in the age of social media

We will always have to contend with patients who prefer Dr Google. These patients will challenge our medical opinions and inferences.

How many times have we seen patients thinking they are suffering from various syndromes that they discovered when they looked up Dr Google? In the process, they created lots of unnecessary stress, anxiety and even trigger panic attacks for themselves.

In addition to Dr Google, we have new challenges coming from fake news, unreliable allegations and conspiracy theories, that seem only too real, posted on social media. Many of them are half-truths making it hard to differentiate. Others have authors touting to be doctors and there is just no way to verify their qualifications.

These posts result in more confusion, delayed treatment or poor compliance. Many patients or members of the public even uphold such fallacies and firmly believe in them over facts that are less juicy and more mundane.

As the saying goes, a lie if repeated enough times will start to sound like truth.

A doctor's dilemma

How do we feel when we decide to share new medical information with our friends only to find out later that these are hoaxes and fake news?

As modern medical practitioners, we are faced with many ethical dilemmas daily.

One example is how to make money and yet not being seen as profiteering or mercenary. In the private practice world, we are not only doctors but also businessmen and shopkeepers. We need to fulfil the different roles that we play and strike a balance between them.

If our business fails, we will not be able to maintain our shop, and we cannot pay our staff, our rent and the inventory required to run the clinic.

At the same time, we also need to understand that we owe it to our patients to look after ourselves well so that we can look after them.

Doctors are human too

When a clinic is not able to survive, it will mean one less Public Health Preparedness Clinic to battle against COVID-19, and one less clinic to support Ministry of Health (MOH) initiatives in transforming healthcare in Singapore.

Like it or not, we are leaders in our society and we need to set good examples for everyone.

Negative examples, such as selling cough mixture and sleeping pills, have been in the media in the past. More recently, shameful wrongdoings involving doctors' spouses or partners have cast a negative shadow on our profession in the public eye. The doctors may be undergoing a lot of stress or may be mentally unwell, but they are still our fallen comrades. We need to take care of them even when our society still holds them accountable to the high social and ethical standards expected of the profession.

We are expected to be compassionate and do pro-bono work especially during crises such as the current COVID-19 situation. We are expected to step up to face the onslaught, risk our lives at the frontline and risk spreading the virus to our loved ones.

We have been doing pro-bono work all this while in various capacities ranging from waiving the charges of needy patients in our own practices, to volunteering to participate in various MOH working committees and volunteering in various voluntary welfare organisations, non-governmental organisations and professional bodies.

As medical doctors, have you ever wondered what is expected of you when you are in public? Can you be incognito just like any other person next door, or

must you project a professional image? Can you be an ordinary citizen just like any other member of the public with possible vices or bad personal habits or selfish practices? Do we need to be exemplary in whatever we do in public?

Without a doubt, our society holds us doctors to very high standards.

Those who have been criminally prosecuted will get a second penalty from the Singapore Medical Council, with a possible suspension being handed down. Double jeopardy, as it is known, is seldom dished out to the ordinary laymen in society.

Is this really fair?

In my personal opinion, society should have a more realistic expectation of doctors. Doctors are after all human. We all know that to err is human. We have our own human needs and are capable of making mistakes.

Taking care of our own

In times of crisis like the COVID-19 outbreak, doctors will rise to the occasion to dig our heels in the trenches, man our positions in the frontlines and perform beyond our usual duties. That includes working longer hours and donning uncomfortable restrictive gear (otherwise known as the personal protective equipment) that increases fatigue. And all these weariness and uncertainties take a toll on our mental health.

Being human, we not only have our human needs and are vulnerable to temptations, but also need to take care of our mental health.

We need to help our fraternity when some of our colleagues fall ill and succumb to mental illness and conditions. We need to be more preventive and move upstream. We need to pick up early signs and prevent a total meltdown of the person. We therefore must learn to look out for one another. We need to learn to preempt the breakdown by learning to pick up early and subtle signs of mental distress and breakdown. By the time they need treatment, we would have been too late.

We have family too. We are somebody's son and daughter, somebody's father and mother too. We need to look after our family and bring home the bacon. To our parents, we are always their babies. Even after years of qualifying as a doctor and accumulating countless credentials, we are still children in their eyes.

When our children fall ill, who will you see first? Your patients or your child? Can you stop seeing your patients at your clinic, to go home and attend to your child? Or will you leave your child suffering at home with the helper while you carry on the noble job of treating the sick in your busy clinic? What are our responsibilities and priorities? Where does the balance lie?

Being part of the medical community, we are expected to maintain collegiality. We may not agree with our colleagues' practices, but we should not wash dirty linen in public. Instead we should expect to resolve any disagreement internally, because within our community we are better able to appreciate the differences in clinical practice and justifications for them.

Ladies and gentlemen, give yourself a pat on the back. We deserve it.

As we strive forward to battle against the COVID-19 pandemic, we doctors must remember we play a major role. Let us all persevere and rise to the challenges and rigorous requirements in this current and any future pandemics.

I agree it is not an easy task but let us stay true to our hearts and steering. We are called to be doctors for a time like this.

The real test is, will you want your children to be doctors too?

As I step down from my second-year term as SMA President, I would like to thank all my readers for allowing me to share my thoughts with you and thank you for bearing with me these two years. Wishing all of you a very bright future ahead. ◆

Dr Lee is a GP practising in Macpherson. He is also a member of the current National General Practitioner Advisory Panel. He is a pet lover at heart who is the proud owner of a dog, and regularly feeds neighbourhood community cats. He also enjoys playing online war games and thinks that playing Pokemon Go is a good form of exercise.

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Share Your Uplifting COVID-19 Stories!

There's always a light at the end of the tunnel – a bit of hope for the next day. The COVID-19 situation is tense, and we all need something to lift our spirits.

Have you witnessed something that left a deep impression on you? Were you heartened by how Singapore has handled the outbreak? Or perhaps you want to share your views on how COVID-19 has impacted you and your colleagues?

You could be the shining light in these trying times.
SMA News eagerly awaits your contributions at **news@sma.org.sg**.

HIGHLIGHTS

From the Honorary Secretary

Report by Dr Lim Kheng Choon

Dr Lim is the Honorary Secretary of the 60th SMA Council. He is currently a consultant at Singapore General Hospital.

#sgArtForHCW campaign

Our healthcare workers (HCWs) are fighting a war against the coronavirus (COVID-19). They are working long hours, under tough conditions wearing personal protective equipment, with little rest, and restricted water and toilet breaks.

Our HCWs face uncertainty, fear and stress. Some HCWs are even discriminated against by the public because of their uniform and this has severely affected their morale. We must thus come together as a nation to support each other. No one should fight alone.

You can now show support and encouragement through your artwork. Submit words and drawings of encouragement, show that you care and wish them well. Let's overcome this together as a nation.

To submit your artworks:

Write down your words of encouragement or create artwork for our frontline healthcare workers. Upload it to your Instagram or Facebook account as a public post with the hashtag #sgartforhcw, or submit to us via https://www.surveymonkey.com/r/V2XPK5N.

The submissions received can be viewed at http://bit.ly/3cxaxgv. Submissions will also be shared on SMA's Facebook group.

SMA's donation to LKCMedicine Advancement Fund

We are delighted to announce a $15,000 donation to the Lee Kong Chian School of Medicine (LKCMedicine) Advancement Fund. As part of this initiative, an SMA Outstanding Scholarly Project Prize will be awarded.

This new collaboration adds on to SMA and SMA Charity Fund's ongoing support of our local medical schools, alongside the Wong Hock Boon - SMACF Outstanding Mentor Awards at National University of Singapore Yong Loo Lin School of Medicine, and SMA-Lee Foundation Awards at Duke-NUS Medical School.

SMA representation on MOH Healthcare Ethics Capability Committee

Dr Anantham Devanand, a member of the SMA Council, has been appointed as member of the Healthcare Ethics Capability Committee (HECC).

The HECC's terms of reference will primarily be to (i) oversee the implementation of the training roadmap, including reviewing and approving suitable new training programmes, and (ii) review and update the clinical ethic competency framework for healthcare professionals.

We congratulate Dr Devanand on his appointment.

A Close Encounter with COVID-19

Text and photos by Dr Lam Mun San

COVID-19 has turned the lives of Singaporeans upside down since the first case was reported on 23 January 2020 (an imported case of a Wuhan tourist). As of 15 April 2020, Singapore has reported a total of 3,252 cases, making us the third highest number of cases in Southeast Asia, after the Philippines and Malaysia.[1] It has also penetrated many aspects of our lives, affecting people in various industries and organisations – healthcare, tourism, hospitality, finance, education, religious organisations, retail, foreign workers and most recently, a Singapore Armed Forces regular.

As an infectious disease (ID) specialist who entered private practice in the year 2000, I had completely escaped the onslaught of SARS. I watched from the sidelines as my colleagues in public institutions battled the scourge of the frightening infection in 2003. It would be correct to say that most doctors in private practice had no first-hand experience with SARS. We were protected by our colleagues in the restructured hospitals, especially Tan Tock Seng Hospital which was designated "SARS central".

The opening of the National Centre for Infectious Diseases (NCID) was indeed timely and welcoming, even though we worried that it would become a white elephant. Our one and only patient, a 38-year-old Nigerian man with monkeypox,[2] did the opening honours in May 2019. Many had forgotten about SARS 17 years ago and had ignored the emergence of a new infection.

My encounter with COVID-19

On 3 February 2020, I cared for a patient at Mount Elizabeth Novena Hospital who was admitted as a fever of unknown origin.

Clinical Aspects of Case 29: Mr A / Male / 41 years old / Married / IT executive

The patient was admitted from the hospital's emergency department on 3 February 2020 for a fever of seven days with mild respiratory and gastrointestinal symptoms. He had consulted GPs on two occasions and was given symptomatic treatment prior to admission. He had no risk factors – no recent travel to China and no contact with high risk individuals. His family members were also well. As such, he did not fit the case definition then.[3] In other words, he was deemed a "safe" case or a low risk patient. Hence, he was able to slip through the first gantry (the emergency department) and was admitted to the general ward.

Clinical examination showed a febrile and slightly dehydrated but otherwise healthy patient. Vital signs were normal, he was not in distress and oxygen saturation on room air was normal. His oropharynx was mildly injected and lung auscultation was clear. Abdominal examination was unremarkable. There were no rashes or cervical lymph nodes detected.

The admitting blood tests, including a negative rapid flu-swab test, were unremarkable except for a dengue IgM positive. A chest x-ray (CXR) done on admission was normal (Figure 1). A full blood count (FBC) showed a normal FBC with a very slight neutrophilia 81.3%, normal platelets of 214k, normal white cell count, and normal renal and hepatic panels. C-Reactive protein was elevated at 37.70 mg/L, dengue NS1 Ag was negative, dengue IgM positive, dengue IgG negative, mononucleosis spot test negative, and mycoplasma serology (IgM, Ab) was negative. He was managed symptomatically with intravenous hydration, antipyretics, cough syrup and Difflam throat sprays. He remained febrile over the next two days at day 9 of putative dengue diagnosis. Chest auscultation on the morning of day 3 hospitalisation revealed new onset lung crepitations which were not heard in the first two days. A repeat CXR was ordered on 5 February. The CXR done 48 hours after the first revealed scattered peripheral patchy alveolar infiltrates in both lungs (Figure 2). It was alarming enough for the radiologist to call me about his travel history. Further detailed testing for respiratory panel (Respiratory Panel Multiplex) including COVID-19 was sent. Respiratory Panel Multiplex returned negative. The COVID-19 test result was confirmed the same evening. I received a call from the Ministry of Health (MOH) at 10 pm that night.

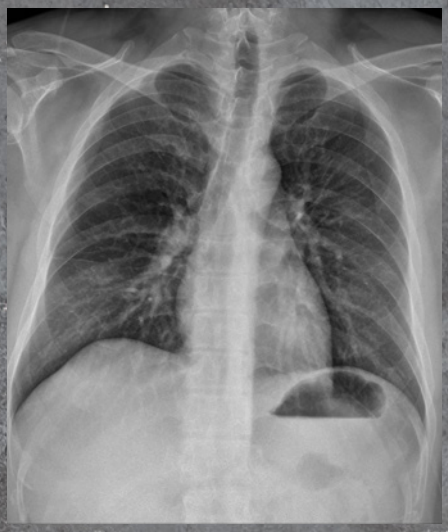

Figure 1

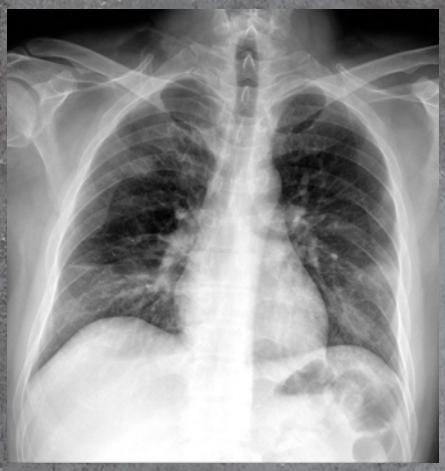

Figure 2

My contact with him was brief and I had worn a surgical mask which I wore routinely for patients with respiratory symptoms. From an infection control point of view, a surgical mask was adequate for droplet infection. At the time of writing, it is believed that COVID-19 is transmitted via droplet infection and close contact. Also, I would like to highlight that my experience with sending a swab for COVID-19 in a low risk individual was daunting, to say the least. This was before the MOH instituted COVID-19

testing for all pneumonia cases in restructured hospitals on 4 February 2020.[4] I had to "get permission" from a public health officer managing the MOH hotline when testing policies were more restrictive. The patient was transferred to NCID the next day on 6 February 2020. I understand that he did well and was discharged about one week later.

An interesting aspect of this case was the positive dengue serology (dengue IgM +). A case of coinfection with both dengue and COVID-19 was reported in the *Straits Times* on 20 February 2020 at Ng Teng Fong General Hospital.[5] The patient (case #82) was admitted with classical dengue signs and symptoms and treated as such in the general ward until COVID-19 testing was ordered for persistent fever and respiratory symptoms. This returned positive and she was transferred to an isolation ward. My patient did not have any rash or thrombocytopenia, and dengue Ag and dengue IgG were negative; although he had an isolated dengue IgM positive, which I believe in retrospect could represent cross-reactivity from another viral infection (COVID-19). This would complicate matters as Singapore is also experiencing an ongoing dengue epidemic.

Aside from this, I would have to say that the MOH did a good job of updating the public on this outbreak, with its frequent press briefings, and the transparent reporting of cases and containment measures. The only hiccup was when they upgraded the Disease Outbreak Response System Condition from yellow to orange, causing panic among the public resulting in frantic stockpiling and a shortage of masks, hand sanitisers and even toilet paper!

My voluntary LOA

Although it was deemed a low risk exposure, I was advised by MOH and Mount Elizabeth Novena Hospital to take a 14-day voluntary leave of absence (LOA), so as to allay fears from colleagues and patients, in case I was incubating the disease and would inadvertently pass it on to them.

I had not taken a day of medical leave for as long as I can remember, so spending 14 days at home doing "nothing" was a new chapter for me. Thanks to Netflix, Marie Kondo and social media, I was able to occupy myself with tasks I would not ordinarily have the luxury of time to do. The clinic was busy for the first few days as my staff had to deal with a barrage of phone calls and emails from concerned patients. I had no idea how fast news could travel. The clinic even received a call from a *New Straits Times* reporter (all the way from Malaysia) asking sensitive questions about my status, all of which were skilfully handled by my clinic staff (kudos to ShinYi). This was a real test of a "public relations exercise", particularly important in private practice. I also received many messages from colleagues and well-wishers, as well as "get well soon" messages. Although I was as well as I could be, I appreciated them very much. I also received some congratulatory messages for owning the dubious honour of diagnosing the first case with no risk factors and no links to clusters. (*Thank you very much!*)

Lessons from this episode

1. Case definitions are helpful but there will always be the first case that falls outside the net.
2. Unknown fevers should be respected and treated with care especially during this time.
3. Striking the right balance between paranoia and complacency is difficult, but we should err on the side of safety. We see thousands of patients with fever and respiratory symptoms daily in Singapore – you can imagine the amount of background noise here.
4. Complacency is dangerous. I hope we will not forget this episode when it blows over.
5. Caution is needed with dengue serology cross-reaction, especially when there are predominant respiratory symptoms and absence of classic dengue symptoms/signs like rash and thrombocytopenia. A positive dengue antigen test offers some reassurance.

Acknowledgements

I would like to thank all the frontline healthcare workers in our restructured hospitals and NCID for courageously handling the situation and protecting the rest of the public from this infection. Last but not least, I would like to thank my family (including my domestic helpers) for putting up with me during the two weeks of my confinement at home. And my patient husband who had been bearing the brunt of being asked repeatedly why he was not on quarantine (for being the contact of a contact). ◆

Information is accurate as at time of print.

Dr Lam is an infectious disease (ID) physician in private practice at Mount Elizabeth Novena Hospital, Singapore. She was one of the pioneer batch of ID physicians trained in Singapore in 1988. She received her post-doctoral ID training in the US under a Health Manpower Development Programme scholarship from 1991-1993 at Massachusetts General Hospital in Boston, USA.

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STRENGTH IN UNITY

The Ups and Downs of COVID-19

Editor's note:

This spread came about because in the frenzy that has become our new "BAU"*, many of us barely had the chance to process all that's been happening. Each day brings new changes that we are required to frantically keep pace with, forcing a kind of hypervigilance on our already overstretched minds. *SMA News* invited doctors to share their perspective of how COVID-19 has affected them on a professional and personal level. Over the next few issues, we will feature people of different seniorities, with varying levels of "frontline" duties and healthcare settings. We have not been able to give a voice to everyone – there were some who simply didn't have the bandwidth during this time. We hope that in the future, we will hear from them. #SGUnited

I was studying in Beijing during the SARS outbreak in 2003. The school campus was closed to prevent virus transmission, but I somehow managed to sneak out to buy my first computer. Guess I was too bored and young at that time.

Things are very different now in 2020 as we face COVID-19, because computers can help solve almost every problem, except how to keep my two young kids engaged. It is a disaster for them, and also for me somewhat, that there are no more bouncy castles, overseas travels and friend gatherings. But at the same time, we found out that we could collect seashells along East Coast Park and a family of otters lives in the Singapore Botanic Gardens. We also finally decorated the playroom wall as per what we had planned for a long time ago. We have since learnt that life can be appreciated in many different ways.

I work as a psychiatrist in the Institute of Mental Health and I often experience mixed feelings when I hear of my friends being posted to the National Centre for Infectious Diseases (NCID). On one hand, I feel proud of them for sacrificing themselves to safeguard the country, but on the other hand, I worry for their safety. Everyone can be a hero during these difficult times. As for me, the best way to contribute is to carry on my duty to help my patients.

Dr Zhao Zhenru, *Institute of Mental Health*

It has been heart-warming to see how quickly people at every level have stepped up to face this new challenge. As the severity of the situation dawned on us, junior doctors volunteered to staff the newly created isolation and pneumonia wards, while others stepped in to take up more calls and clinics to cover their duties. Senior doctors bustled from one meeting to another, all too often forgoing meals. Nursing colleagues redeployed from surgical wards quickly got to grips with the workflows and processes to ensure that screening swabs were sent off to the National Public Health Laboratory at the right times.

Buried beneath the surface of our response was a tacit, steely determination that we would put our best foot forward despite not knowing what lay ahead. Calmness and courage came from the knowledge that we had survived SARS, that we have learnt from that experience and we are better prepared this time around. In the midst of adversity, we were united and purposeful.

My doctoring friends from other countries have been asking me how Singapore has managed to keep COVID-19 cases relatively under control. We can hold our head high that Singapore has fared admirably when compared to other countries, even when faced with the same "examination" of our healthcare system. There's more work to be done, but we can take heart in what we have achieved thus far!

Dr Paul Tern, *Singapore General Hospital*

During these difficult times, it is not only the doctors but our frontline workers who willingly rose to the occasion. The patient service associates, nurses and healthcare assistants are all crucial components of the team and are often more exposed than us doctors. I learnt that communicating and engaging everyone is of utmost importance. People need to understand what they are dealing with and have their questions answered. When they know that they are protected and have their best interests taken care of, people will always give their best. This is not only important within the organisation but extends to the intermediate and long term care sectors and partners that we work with as well.

I have also realised that a quick and precise means to communicate changes and instruction is crucial in ensuring that everyone is aligned on, rather than each with their own interpretation of, the situation. Even more important is to communicate intent so that people will understand why things are changing quickly and can agree to adapt to the changes. This then allows feedback and loop closures when things cannot be done, and quick adjustments can be made.

Together we can move faster and be stronger.

A/Prof Ong Biauw Chi, *Anaesthesiology, Sengkang General Hospital*

I haven't had dinner with my parents in weeks and I won't for weeks more to come.

Today, I stopped by to drop off their chronic medications. We talked two metres away from each other in masks; in that awkward, halting language in which adult children try to tell their conservative Asian parents "I love you" without quite saying it.

My mum, as usual, tried to foist food on me. This iteration would be a plate of dumplings. I really wasn't hungry and I thought about saying no, but we're Singaporean, and to us food is love. And you don't say no to love, or dumplings.

I asked her to leave the plate on the floor, and after she had closed the door, picked it up and ate it. I will return her the plate after.

After.

Yes, there will be an after. This too shall pass.

Dr Alex Wong, *Private Practitioner*

It's no easy task wrenching surgeons out from their comfortable operating theatres and clinics and sending them to the NCID Screening Centre. The first batch of warriors were mostly medical officers, but the second batch sent in mid-February included associate consultants and consultants who had not stepped out of our department for years. Adding to the chaos of the varying ages and experience of medical staff is that everyone looks the same in personal protective equipment! *Spot the old man among the two young ladies in the picture.*

We used colour coded tags (for doctors/nurses/radiographers/etc) and wrote our names in large print with marker (or small text to avoid being called!). One good part of the whole experience though was the camaraderie – since everyone from security to surgical consultant wears the same outfit, eats together and works together, many of us have made new friends (with appropriate social distancing of course!). One batch was even rumoured to have gone for a run together after night shift, although this author cannot verify this. ◆

Dr Sunder Balasubramaniam, *General Surgery, Tan Tock Seng Hospital*

** BAU stands for business as usual*

OPINION

A CORONAVIRUS COMMENTARY

2003 TO 2020

Text by Prof Chee Yam Cheng

There is much more media coverage on the coronavirus SARS-CoV-2, announced to the world by China on 31 December 2019, compared to the one responsible for SARS in 2002. Singapore was struck with SARS in January 2003 without knowing what the bug was. It was nosocomial and Tan Tock Seng Hospital (TTSH) was declared SARS central to combat the outbreak. The hospital inpatients were sent home if they were not that unwell, to make beds available for those very ill with pneumonia. Without a laboratory diagnostic test and relying mainly on clinical criteria, some patients discharged actually had the virus. When their conditions worsened, they were warded in other public hospitals, thus spreading the disease to Singapore General Hospital (SGH) and National University Hospital.

SARS and COVID-19: similarities and differences

The SARS virus originated in southern China, probably in Guangdong province. The COVID-19 epicentre was Wuhan in Hubei province. Both were associated with huge markets where live animals, some rather exotic, were traded, slaughtered and eaten. Today, the origin of the SARS virus has been traced back to bats and civet cats. For COVID-19, we are still not sure how the spread from animal to man has occurred.

Both Chinese doctors who sounded the first alarm of the new diseases died. The 61-year-old physician who made his way into Hong Kong in December 2002 to seek treatment for his pneumonia stayed in the Metropole Hotel in room 911. While in the hotel lift, he unfortunately spread it to some Singaporean tourists. These Singaporeans returned and were hospitalised at TTSH. The doctor in Hong Kong was subsequently warded at the Prince of Wales Hospital and died of SARS.

In the first week of December 2019, ophthalmologist Dr Li Wenliang, aged 34 years, found out about the new coronavirus causing respiratory problems in the people of Wuhan. He did his best to alert his colleagues and the world about this. Instead the police went after him. By the end of the month, he was proven right. He and his parents were affected by this virus. Dr Li's infection worsened over three weeks; he was in intensive care and intubated, but did not survive. His contact was a patient whom he was treating for glaucoma.

Unfortunately for us in Singapore, there were super spreaders among those infected during the SARS period. These patients themselves were relatively well, but spread SARS quite easily to others. I remember one patient at TTSH who spread it to a friend who visited her, and the friend's pastor and some family members succumbed. The virus also spread among the healthcare workers at TTSH which resulted in some deaths. Dr Alex Chao, who was in SGH at that time, also died of the disease. For COVID-19, this phenomenon of super spreaders seems to not be present. And for us at TTSH, with better preventive measures, there has been no nosocomial spread.

As SARS was unknown in early 2003, we were lucky that fever was the initial symptom in the majority of patients infected. Hence temperature taking twice daily for healthcare workers was the norm. Once febrile, the staff was quarantined and their contacts put under surveillance. At the hospital level, a great attempt was made to detect clusters of febrile staff early. Temperature screening was expanded to other facilities and airports as a means to detect patients early and quarantine them to protect the rest of society. For COVID-19, although fever is a prominent symptom of the disease, many infected appear to be asymptomatic and without fever. One of our earliest cases in Singapore was a tourist from Wuhan who came to Singapore in January 2020. He passed through the airport thermal scanners without a fever – at that time he only had a sore throat.

The other lucky break with SARS was that during the incubation period of the disease, the person was not infectious. We found out with dismay that COVID-19 was different. With so many tourists from China in Singapore during their Lunar New Year break, and thermal screening not foolproof, some of them became sick while in Singapore, and probably spread the disease during its incubation period. First estimates of the incubation period was about two weeks, but the mean is about 5.2 days.

As was the case with SARS, the World Health Organization has recommended supportive treatment for these viral diseases. Ribavirin and steroids were tried during SARS, but to date there are no effective antiviral drugs. One theory for the severe lung destruction in some patients with SARS was the hyper immune response of the host to the virus causing the damage, rather than the virulence of the virus per se. Of course secondary bacterial infection can complicate the pneumonia. Mortality rates for SARS was around 10%, while it is said to be about 2% outside of Wuhan (where it is higher) for the new virus.

Containing the spread via contact tracing

Regarding public health measures for containment of the disease, one important difference was that during SARS, it was Singaporeans infected overseas who returned home with the disease and spread it to other Singaporeans (although we should remember that one healthcare

worker who died was from the Philippines). In contrast, the local COVID-19 outbreak did not start with Singaporean patients. The first cases in January 2020 were from China (specifically from Wuhan). They were mainly tourists, though some were also Singaporeans and permanent residents who had visited China and returned back to Singapore.

This China link proved vital in the contact tracing process to prevent the disease from spreading to the community at large. Unfortunately there was a private company conference held at the Grand Hyatt Singapore hotel in January 2020 and many of its delegates were from overseas including some from China. They met, they left for home. Soon after, a Malaysian, two South Koreans and a Briton at the same conference took ill with the disease. Following the conference, the Briton took a holiday at a ski resort in the French Alps, stayed in a chalet there and spread it to those around him.

Contact tracing is an arduous and meticulous process. Every minute of one's activity is tracked once a contact person is identified. Through such means, clusters of patients are identified. For a while, it was possible to link cases' origins back to a person with links to China and Wuhan. However, it became evident that community spread had occurred once no such links could be identified. As a result, on 7 February 2020 (Friday), Singapore raised its Disease Outbreak Response System Condition level to orange from the previous yellow.

Global effects of COVID-19

During the SARS outbreak, there was no diagnostic kit available. For COVID-19, as Chinese scientists had identified the new coronavirus and put its genome in the public domain, test kits were available for confirmation of the diagnosis. However, the existing kits took more than 24 hours to give a confirmatory result. Therefore suspected cases of the disease may have to be in quarantine or isolation till they are cleared. Fortunately, it was recently reported that A*STAR scientists have developed a new kit where the result is available after four hours.

The National Centre for Infectious Diseases (NCID) was opened just last year. This modern facility has enough capacity to deal with such outbreaks. This is a far cry from 2003 when TTSH facilities had to be evacuated of general patients and reserved for patients with SARS. So this round, TTSH can continue to function as the general hospital that it is and the public healthcare clusters are not deprived of some 1,000 beds for general acute care. Besides facilities, there is enough equipment for NCID to run its operations, including personal protective equipment for individual healthcare workers.

Globally, the situation is very different. More than 200 nations and territories now have the disease in their populations. By 27 February 2020, there were more new daily cases outside China than inside. Among the countries with high patient count were South Korea (cases linked to the Shincheonji Church of Jesus in Daegu), Italy (northern regions of Lombardy and Veneto), Japan and Iran (epicentre in Qom). By March, countries in Europe (especially Italy and Spain) and the US (including Hawaii) had cases. Italy took the drastic step of locking down 16 million of its population up north (in comparison, the lockdown of Hubei with Wuhan as its epicentre involved 11 million people) on 8 March and New York declared a state of emergency on the same day. In the US, Washington and New York State have had the most cases and deaths. Both in the US and in Spain, the numbers have surpassed those in China. The outbreak has now killed more than 82,000 people and infected 1.43 million worldwide.

The other unusual scenario compared to the SARS outbreak was the COVID-19 cases onboard huge cruise ships with nowhere to dock as no country wanted them. The Diamond Princess was quarantined off Yokohama in Japan, and the Grand Princess was parked outside San Francisco (with 21 people infected), until it was allowed to dock at Oakland. In each ship, there were more than 3,500 passengers onboard, confined to their cabins (the inner cabins have no windows or balconies). As they took ill, they were taken to land.

How Singapore is faring

Before the end of February, the new viral disease was renamed COVID-19 (from 2019-nCoV). By 8 March, there were over 1,400 cases with six deaths and 29 in intensive care. There were more than 32 clusters of cases with the latest at an old age home and in workers' dormitories. It was only in recent weeks that the number of daily new cases started to rise with some days registering over 100 new cases. Hence on Tuesday, 8 April, stringent measures were enforced as part of a circuit breaker strategy to limit the community spread of the virus. Parliament had approved extra budgets amounting to $60 billion to support lives and livelihoods, and to save jobs.

All said, Singapore is well prepared to overcome this global viral outbreak. Come summer time, it is likely the virus will be less prevalent. Whether it will surface again is anybody's guess. The economic cost of this pandemic will be huge. Not only is tourism badly affected, but factories producing essential goods and supplies, especially in China, have shut down for close to two months. The world's stockpile of critical medical equipment is running low.

Optimism and hope should not be abandoned however. China seems to be overcoming the viral onslaught after some three months (counting from December 2019). The rest of the world will learn lessons from what China did right. One possible likely future scenario is that this virus becomes just like the seasonal flu. ◆

Information is accurate as at time of print.

Prof Chee is a pioneer doctor, past editor of the *Singapore Medical Journal*, and a SARS article contributor to *SMA News* in 2003. He is a senior advisor in the National Healthcare Group.

The Truth about Surgery:

Personal anecdotes from a public-sector surgeon (part 1)

Text by Dr Chew Min Hoe

This is the first article of a three-part series. In this, the author examines the difficulties of a complex surgery and patient care. The next two parts explore the importance of knowing one's ability and capacity, adopting innovation and technology, and developing collegiality within the profession.

I looked at my vascular surgeon colleague across the operating table, my finger pressed on the external iliac vein (EIV), compressing it just enough to prevent a large gush of blood from pouring out from the tear, but careful enough not to cause the tear to enlarge further. We both took a deep breath and reconsidered the options. It was already 10.30 pm and the surgery had begun at 9 am. The patient, Mr CYK, was a fit middle-aged gentleman with recurrent rectal cancer. It was late, we were both tired, but the problem at hand was difficult and critical. This was not a bleed that could be packed with gauze and then relooked at after. It had to be solved there and then. How should we proceed?

Patient history

The original cancer was diagnosed almost six years ago. Mr CYK had a laparoscopic ultralow anterior resection performed in the private sector, with subsequent closure of ileostomy after, at that time. The cancer histology was a stage 3b at T3N2M0, and he had subsequent adjuvant chemotherapy and radiotherapy (RT).

I first met Mr CYK about three years ago when he was referred by another surgeon for a lateral cancer recurrence. The tumour recurrence was among the lateral iliac veins and remained localised after a prolonged course of chemotherapy. Noting that there was no disease elsewhere after extensive investigations, we decided to do a lateral node dissection, excising the tumour while preserving all organs. Surgery was smooth and he recovered well after mild ileus, needing total parenteral nutrition (TPN) for about two weeks. The tumour, however, recurred about a year later and he underwent more chemotherapy. Disease had remained stable and localised thereafter.

I was asked again by the oncologist to consider surgical excision. Over the last few years, cancer biology was slow growing and had remained localised. "Cure" was possible if I could achieve an R0 resection. Patient was also fit and motivated. I had several long discussions with Mr CYK before the surgery. While the tumour was confined and relatively small, he had to accept that the surgery would be highly complicated. This would be his fourth surgery and would require extensive adhesiolysis. I was also very categorical, reminding him that to access the tumour this time we would have to remove all pelvic organs including the rectum and bladder. He would thus have two stomas – one for his bowel

movement and an ileal conduit for his urine, but this would allow better access and hopefully better margin clearance. The tumour was also close to the bony pelvic side wall and the sciatic nerve – necessary for walking. Furthermore, as we would be re-dissecting along the iliac vessels, it would be treacherous with a chance of massive blood loss and possible on-table mortality. This conversation was repeated with his family at least three times and understandably there were many questions and discussion of alternatives. I had also obtained consultations for the patient with the urologist and vascular surgeon to help him better understand the surgical plan.

"Let's go for it!" he stated calmly a few weeks later. His family members echoed sentiments of agreement and support. On the day of the operation, there was a big surgical team – two colorectal consultants, one senior consultant urologist, one plastic surgeon, various surgical assistants and of course, an experienced anaesthetist team.

So this was where we were now. Adhesiolysis, as predicted, took almost seven hours as we laboured to unravel the dense small bowel adhesions to access the pelvis. The pelvic organs had been removed and we were now tackling the tumour along the treacherous iliac vessels. The vascular surgeon had opted pre-operatively to put a balloon into the EIV. This could be blown up to occlude the vein while doing dissection of the lateral veins to reduce bleeding. Unfortunately, as the balloon was blown up, the EIV developed a small rent as the vessel was highly thinned out from both previous surgery and RT. The rent, while small, would gush a large volume of blood as it was a large vein. What made it more difficult was that we couldn't repair it with sutures properly as the balloon wire was in situ. Any attempt at suturing would make the tear bigger and blood loss worse.

After some discussion, we gently removed the balloon guidewire which had been inserted via the femoral vein. This was timed with the anaesthetist who was ready and prepared to ensure that there were adequate blood products in the operating theatre (OT). Every time the wire was pulled, we had to release the pressure on the EIV and there would be some expected blood loss, which was managed expediently in a controlled fashion with fluids and blood transfusions by the anaesthetist. The balloon came out carefully, but repair of the vein was difficult even with small 5/0 and 6/0 Prolene sutures. We finally decided to ligate the EIV completely.

Removal of the rest of the tumour proceeded uneventfully and we concluded the operation at 5 am. The whole operation lasted close to 20 hours and the total blood loss was about three litres. His immediate recovery was uneventful. An enterocutaneous fistula developed in the second week post operatively but it was resolved with intravenous antibiotics, three to four weeks of TPN and bowel rest. His wounds were managed expertly by a dedicated team of wound and stoma care nurses who ensured to prevent painful excoriations and that the enterocutaneous fistula was contained.

His leg swelled up for the initial three to four weeks with edema, but it gradually reduced in size with compression stockings. There was no functional impairment. Throughout his recovery, besides the multiple specialty ward rounds, there were also numerous physiotherapists, dieticians, pharmacists, ward nurses, medical officers and interns who attended to his needs, worked on his mobility and sometimes were there simply to cheer him up and encourage him on. His family remained patient and encouraging despite the setback. His birthday was celebrated while in the hospital and his room was decorated with balloons, streamers and lots of smiles. Mr CYK has since been discharged and is well now and back on chemotherapy. He is walking without aid, cheerful and grateful to the entire surgical care team for managing his stomas well.

The truth about surgery…

This example cited is obviously an extreme case. The majority of operations are less complex and remain standard and routine. But routine operations can also become difficult very rapidly. Patients are getting older and frailer, and younger patients are also loaded with more co-morbidities. At the same time, the rapid changes in technology mean a continuous adoption of new techniques, thus requiring surmounting learning curve after learning curve, even as an experienced consultant surgeon.

The pressure also grows. Expectations by patients and caregivers continue to rise whereby complications are sometimes viewed as incompetence, with a resultant increment in complaints and liability issues. In public institutions, the new Accreditation Council for Graduate Medical Education residency training programme has been more structured and systematic in teaching and appraisal, but posting rotation durations have been further reduced from the traditional six months in the advanced surgical trainee system, to the current four months for senior residency. It is thus difficult to build a strong relationship with the resident, which may ultimately translate to reduced trust in competence, judgement and ability, thus increasing the day-to-day workload of the surgeons. The frequent rotations also mean the consultant gets relatively inexperienced assistants in patient management and an increasingly complex OT environment. That is if the consultant even gets a resident, given the reduced numbers in training due to job limitations and policy changes. Evidently, the multidimensional stressors – both external and internal – of being a surgeon, are tremendous. ◆

Dr Chew works in Sengkang General Hospital and enjoys his work with a good team. He aspires to inspire, connects rather than just communicates, and to continue to do good work in the public sector.

Sustainability in Action

Photos by Khoo Teck Puat Hospital
Text by Daryl Lai

Climate change is here to stay. There's no stopping its progress but we can try to stem the spread. Doctors and climate change may seem worlds apart, but you'd be surprised at how much doctors and their institutions can contribute to the slowing down of climate change.

As part of the focus for this issue, *SMA News* takes a look at a hospital that has been at the forefront of sustainability and green initiatives – the Khoo Teck Puat Hospital (KTPH). Almost everything that went into the hospital – from the concept to the design – was for a green reason and sustainability.

A sustainable hospital

Yishun Health has always placed sustainability and environmental consciousness at the forefront of its culture and the construction of KTPH was led with a complicated brief. The design required a hospital that was energy efficient and sustainable – very unlike existing hospitals. The resulting hospital was more than just a facility to treat patients; it was a co-created, patient-centred and community-integrated compound where healing came together from the combination of medicine, design, environment and sustainability.

The winning design worked passive design considerations into the KTPH building, and ensured that it not only met the goals of community integration, but of sustainability as well. The combination of vibrant, landscaped grounds and a green, sustainable design won KTPH the Building and Construction Authority's Green Mark Platinum Award in 2009.

A green environment inside and out

The state of the environment can directly impact public health – surroundings full of litter, polluted water sources and dirty air can all affect wellness in patients as well as the general public. Ongoing research also suggests that accelerating climate change will lead to rising temperatures

around the world, meaning more aggressive flu seasons and a more rapid spread of vector-borne diseases. As such, it was important to put in place several methods of harnessing natural energy for a greener hospital.

Natural ventilation

With Singapore's year-round heat and humidity, air-conditioning has become a staple of life. With this boon, however, comes consequences for the environment – air-conditioners accounted for about 19% of Singapore's total emissions, the second highest behind industries.[1] To combat this, the hospital's design incorporates a unique V-shaped structural layout that angles each of its three blocks to block out direct sunlight and channel natural wind through its interior. This orientation means that about 35% of the hospital is naturally ventilated, allowing 8.6 million kWh of electricity to be saved annually, enough to power the air-conditioning of 6,718 households for an entire year. Subsidised wards benefit the most from the hospital's layout, as they are now well ventilated with the natural power of the wind. While private wards are air-conditioned, the units are turned off automatically when the windows are opened. The rooms are also fitted with ceiling fans as a form of natural ventilation.[2]

Solar panels

Given the amount of sunlight that Singapore is exposed to, the natural direction in sustainability would be to harness solar energy. The hospital's dedication to a green and energy efficient layout led to the installation of solar panels on its roofs to utilise this clean, renewable energy and to minimise carbon emissions. Not only does the hospital convert solar energy into electricity for its use, but it also has a solar thermal system that produces hot water for the hospital's needs. These renewable energy initiatives have enabled the hospital to increase its energy efficiency by up to 30% as compared to other hospitals.[3]

Harnessing rainwater

Yishun Pond is one of Singapore's stormwater collection ponds, collecting rainwater runoff from the surrounding areas. One of the challenging points in the initial design brief was to integrate the pond into KTPH. The result is a one kilometre promenade surrounding the pond that extends seamlessly from the main courtyard of the hospital, drawing the pond in and making it an integral feature of the hospital rather than just an add-on. In exchange for KTPH channelling rainwater collected on the hospital premises back to the pond, the Public Utilities Board provides water back to KTPH at a discounted rate. Water from the pond is treated and channelled back to the hospital for its irrigation needs, reducing the hospital's reliance on potable water. Sensors were also installed to detect rain and stop any irrigation to prevent water wastage.

Rooftop garden

Rooftop gardens have been shown to improve building performance, including improved air quality, increased energy efficiency and a reduced urban heat island effect.[4] KTPH's rooftop garden is manned by a team of dedicated volunteers, and boasts over 100 species of plants and vegetables.[5] The produce is harvested and used in the hospital kitchen, and also sold to the public and staff on selected days. Proceeds go to the hospital's Green Fund, which is used to purchase more seeds, soil and other gardening needs to keep the garden running.

Continuing sustainability efforts

As KTPH's Operations Deputy Director for Facilities Management, Mr Chin Yew Leong, pointed out, "Green design and technology are well and good, but it is only the first step; you have to sustain it."[6] KTPH has been doing an admirable job at sustaining its green efforts, taking steps to ensure the inevitable impact of everyday operations is minimised via policies, building design and facilities management.

Apart from these steps, a significant part of the organisation's focus is on mindset change. Mr Chin, who chairs Yishun Health's Green Committee, acknowledges that sustainability requires more than just a ground-up effort; it takes a commitment from leadership that is willing to lead by example and implement green, sustainable policies and strategies. It

is a challenge, Mr Chin says, to deliver healthcare of the highest level and ensure the hospital runs smoothly, while at the same time being an advocate for sustainability in the environment.[6]

Mrs Chew Kwee Tiang, CEO of KTPH, said, "[KTPH is] committed to performing our primary role as a healthcare provider while proactively minimising our impact on the environment",[6] and reiterates that sustainability was always a part of the hospital's vision since 2000 – to build a hospital that would not only do its duty to its patients, but to the environment as well. ◆

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Legend

1. KTPH overlooking the Yishun Pond

2. One of the hospital's roof gardens tended to by volunteers

Water from the HEART

PROJECT NAAMJAI

Text by Dr Hargaven Singh Gill in collaboration with Dr Evelyn Wong Yi Ting
Photos by Project Naamjai

Nestled in Mae Na Chon, in the outskirts of Chiang Mai, lies a group of underserved and outcast people – the Karen population. It was difficult for them to access medical aid, and dirt paths were often the only means of entering and leaving their villages.

In 2012, a group of local medical graduates and students foresaw the needs of this community, resulting in the inception of "Project Naamjai", which in Thai means "Water from the Heart". This was to remind those on the team of the importance of having a heart of service.

Over the Christmas of 2019 (21 to 28 December), a team of six doctors and one medical student braved the winter of the mountains in Chiang Mai to provide medical aid to the villages spread across the region.

The journey

Oscillating at the back of the pick-up van, along the dirt track, was not a foreign experience for many on this trip. Each had our reason for journeying to a foreign land and forgoing personal comforts, but a common goal had forged us all together – to serve the underserved Karen community.

After journeying three to four hours from the heart of Chiang Mai to Mae Na Chon, we arrived at our accommodation – the church of the village pastor, Pastor Pharot. The peripheries were lined by brick walls, built during previous trips by members who were also present on the current trip, and a low rumbling river that cut across its fields. We were introduced to five translators, who soon became our closest aides, and plans were concretised surrounding the villages we would provide medical camps for that Christmas.

Medical camps

A total of four villages (Ban Mai Village, Mae Chon Luang, Chang Khoek and Khong Khaek) were eventually selected by Pastor Pharot and the team. Prior to running the camps, we dropped by our regular pharmacy to top up our medical supplies. Fortunately, knowing the aim and purpose of our regular visits to Chiang Mai, a local pharmacist donated a few hundred pills of nonsteroidal anti-inflammatory drugs to our cause, which subsequently proved to be a vital staple of our dispensary.

Most of the cases seen during our medical consults were musculoskeletal (eg, back pain), respiratory (eg, cough), gastrointestinal (eg, diarrhoea or constipation) or dermatological (eg, fungal rash) in nature. However, there were a few that stood out, including patients with cervical myelopathy, pernicious anaemia and atypical Parkinsonian features.

Home visits

The highlight of the medical camps for most of us were the home visits. Over the previous years, our predecessors

learnt through the village pastors and leaders that a few locals were too aged or unwell to walk from their houses to the town square, where our mobile clinics were situated. We thus assigned a home visit team each day, guided by a village pastor, to provide medical aid to these individuals.

During my home visit rotation, I met an elderly couple who had both been afflicted with hemiplegic stroke, rendering them wheelchair bound. They had only a single caretaker, and care seemed laborious for this elderly couple. However, it was heartening to know that

the village at large would support the aged couple with provisions of food, physical aid and finances when required.

We soon learnt that the villagers' favourite part of our home visits was having their blood pressure measurement taken with our cuffs, although no eventual medical care might be rendered for their conditions. It dawned upon me then that human touch was what these individuals valued most – the comfort of our care, above our ability to cure and treat.

Midwife teachings

A special addition to this year's medical camps was the focus on women's health – specifically, midwife training through education and awareness of the delivery process of a fetus, common complications faced during labour, and possible contraceptive methods. This was chaired by our enthusiastic final year medical student, Sudesna Chowdhury, and our family medicine resident, Dr Wong Simin.

Crowds of ladies would gather around our posters daily and be interviewed on their local practices. It was interesting to note that almost all village females in labour could access their local hospital in Mae Chaem easily and home deliveries were becoming less common. Affordable contraceptive procedures, such as Implanon insertion or tubal ligation, were also being offered by the hospital post-delivery.

Blessings hostel

To experience the true local culture, we celebrated Christmas by carolling and dancing with the local hostel community at the Blessings Hostel. This hostel was offered as a place where children from villages further away could stay near the local school to study. Unfortunately, over the years, the hostel had run into debts procuring food for the children, as financial support from the government had been cut to an average of 10 to 20 baht per meal per child. That would amount to less than one Singapore dollar per meal per child. This, however, did not dampen the spirits of the children or their caretakers as we celebrated late into the night. We had also tabled discussions with Pastor Pharot during our time there on measures to circumvent the hostel's financial state.

As the trip ended and we were on our journey back to the airport, many of us "old timers" reminisced with fondness our past years of toil and effort in the local community and how they were slowly beginning to bear fruit. However, as our medical oncologist team leader, Dr Evelyn Wong, would nicely summarise: we toil for our patients not knowing the outcome – or at times knowing there may be no good outcome – and continue to be their bastion of hope because each and every person deserves our best efforts and a silver lining. ◆

Legend

1. A topographic layout of our medical camps and key landmarks

2. One of the many house visits done by Project Naamjai during our medical camps

3. One of our women's health booths

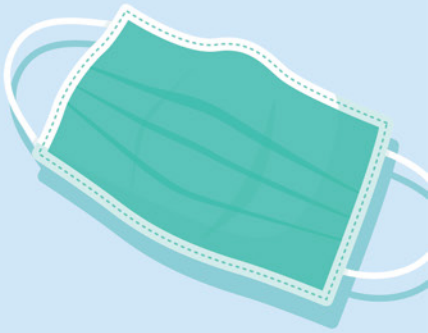
4. Team members of Project Naamjai 2019

Dr Hargaven is a medical officer currently undergoing his medical officer conversion course at the Singapore Armed Forces Medical Training Institute. He has been involved in medical missions since his medical school days, and would like to thank his mentors for their invaluable guidance over the past years.

Dr Wong is a senior resident in the Department of Medical Oncology, National Cancer Centre Singapore who is passionate about health inequalities and digital health interventions. She believes that it is important to travel and see other health systems, for once you see it, you cannot ignore it. She is thankful for all the support her residency has given for pursuing her interests.

AIC SAYS

SUPPORTING OUR CARE PARTNERS IN THE FIGHT AGAINST COVID-19



By Agency for Integrated Care

In response to the escalating COVID-19 situation in late January 2020, the Agency of Integrated Care (AIC), with support from the Ministry of Health (MOH), organised multiple mask fitting sessions in January and February to support our General Practitioners (GPs) in the Primary Care setting. As the gatekeeper and first-line provider of care in the community, GPs and clinic staff are at an increased risk of catching any communicable disease such as COVID-19. Ensuring medical workers are adequately protected is therefore imperative in the fight against COVID-19. While the use of personal protective equipment (PPE) helps keep doctors and staff safe when treating patients, the true efficacy of PPE such as masks is ensured only when users are properly fitted.

Since the introduction of the Public Health Preparedness Clinics (PHPC) scheme in 2015, multiple mask-fitting sessions have been organised during peacetime to support both PHPCs and other healthcare workers in their roles as providers of care to Singaporeans. In view of the rapid spread and worsening of COVID-19 cases, various teams were instantly activated to organise mask fitting sessions at various locations over Singapore. This collaborative effort made it possible for a total of 1027 participants including GPs, clinic staff, as well as healthcare workers in the Intermediate and Long Term Care (ILTC) sector to be mask-fitted.

Guiding participants on the proper way of wearing masks and conducting of seal checks

Ensuring a proper fit between the mask and face with the use of a bitter solution – if the user does not detect the taste of the solution, the fit is acceptable.

We will continue to support our healthcare professionals including GPs like you in the battle against COVID-19. Once again, we thank you for your selflessness and dedication in providing care in the community.

If you have any queries on the response to COVID-19 in the primary care setting, please contact the GP Engagement team at gp@aic.sg or 6632 1199, or visit Primary Care Pages (www.primarycarepages.sg)

Farm-tastic!

Text and photos by Dr Tan Ze Jia

Since Singapore's urbanisation, greenery has always been incorporated into the city's design. As we moved from farms and kampongs to skyscrapers and buildings taller than the trees, we brought this "green culture" up along with us. Plants which, in nature, grow in the undergrowth and shrub layer are now thriving on high floors in Housing Development Board flats and office buildings. Over the past decade, we Singaporeans have taken this "green culture" up a notch through urban farming, community gardening and incorporating greenery into architectural designs such as the PARKROYAL COLLECTION Pickering, Singapore hotel.

Urban gardening and farming started about seven years ago for me. My family would consume one tub of yoghurt each week and I would keep the containers with the intention to reuse them. However, after almost half a year, the "new use" still eluded me. One day, I chanced upon an article on upcycling. It suggested ways we could repurpose some of the things that we usually throw away at home. That inspired me to start my 20-upcycled-yoghurt-container garden. Over the years, this home garden not only expanded in its scale, but also evolved from urban gardening to urban organic farming. Currently, my urban garden's harvests include pandan, lemongrass, ginger, spring onion, celery, parsley, lime, chilli, bell pepper, tomato, basil, mint and rosemary. Needless to say, these are no longer in yoghurt containers.

Cheap, fresh organic food

The most direct benefit of organic urban farming is the cheap and fresh organic produce on your table. The taste of a freshly plucked tomato and bell pepper is something that you can never find in the supermarket. And you can be 100% certain that they are organic. Depending on your garden scale, the produce can be periodic, but the wait is definitely worthwhile.

Promoting mental wellness

The last habit in Stephen Covey's "The Seven Habits of Highly Effective People" – "Sharpen the Saw" – talks about the importance of mental and spiritual renewal. In our field of work where everything happens rapidly, our minds are constantly in overdrive. Hence it is imperative that we slow ourselves down to decompress at the end of the day, and gardening is one ideal activity to help us do so. Whenever I attend to the garden, tranquillity calms my mind and allows the brain to rest and prepare for the next hectic day. The nurturing nature of the process and the eventual satisfaction of seeing the plants blossom and come to fruition has similar therapeutic effects.

Appreciation of food and reducing food wastage

Food security is one of the many benefits that urban farming provides. However, a bigger lesson I have learnt is the appreciation of food production. In a world where food wastage is a global problem, we need to consider its impact on carbon emissions and the efforts of the farmers and people involved in putting the food on our table. I have come to truly appreciate the value of food after I experienced the duration it takes to grow enough tomatoes for a simple salad.

Reducing food miles and foodprint

Similar to reducing food wastage, the benefit of urban farming in reducing food miles eventually leads to a reduction in greenhouse gas emissions created by food production and transportation. The impact of individual efforts may be limited but the collective impact of a community can be significant. Therefore, everyone has a part to play in this.

Aesthetical and cooling effect

Plants are versatile elements in the house which can help to enhance its aesthetics. I often find myself recommending my friends to buy plants or end up gifting them with one instead. One other main benefit to the house is the cooling effect. When I moved into my current place two years ago, I only moved a small portion of my urban garden over. As the unit is on the top floor, it warmed up throughout the day, making it rather hot by the late afternoon. I then expanded my urban garden in the next month and could feel the reduction in house temperature almost immediately, reducing the need to switch on the air-conditioner or allowing a higher temperature to be set on it.

Urban farming has its banes as well. As a pet owner, I find many parallels between caring for my dogs and plants – one of them being the commitment.

Knowing your plants and their enemies

Different plants have different requirements such as the amount of sunlight, water and the pH level of the soil. I had to research on them before I could decide where to place them and how to take care of them. Similar to knowing your plants, there is also a need to know your pests. As an organic farmer, pests are our nemesis and sometimes more than half of our efforts are spent on preventing, monitoring and fighting them. This takes up a considerable amount of my time. Fortunately, the good news is that once you get it right, subsequent efforts will be easier.

Once a farmer, always a farmer

Unlike in the open ground where roots can grow deep and the soil can hold more water, urban farmers need to place more attention on watering. Hence whenever I travel out of Singapore, I will need to make care arrangements for the "farm", like what I do for my dogs. It can be teaching someone at home how to water them or getting someone to house-sit or plant-sit. One other method which I find helpful is to plan the harvest before you go out of town, so you have less to worry about.

Starting on the right foot

Like all things in life, failures and challenges are inevitable. However, the benefits from urban gardening and farming are definitely meaningful. I hope I have succeeded in encouraging all of you to be part of the green movement.

Legend

1. Overcome the common constraint of space in urban gardening by using vertical or hanging pots

2. This is half a harvest from one plant about two to three weeks after flowering

3. Humans are not the only ones who can benefit from urban farming!

4. Cherry tomato has very small yellow flowers. Sometimes we help to pollinate them using an electric toothbrush

5. Can you see all seven growing bell peppers in the photo?

Dr Tan is currently a consultant with the Institute of Mental Health. His areas of interest are in geriatrics and community psychiatry. Outside of work, he spends most of his time with his dogs and plants. He is also a theatre and film enthusiast.

Tips for starting your own urban garden or farm:

1 Choose a space

Look for an available space at home or in your office. It doesn't matter how big or small it is, like the effort in this movement. Next, determine if the space has full sun, is partially shaded or is fully shaded. Most vegetables and fruits need at least partially shaded to full sun. If you only have a fully shaded space you can still have a garden, just not a farm. Consider starting small, to gain experience and then expand.

2 Ensure safety

One of the most ideal places for plants would be by the window. Hence it is important to ensure that they would not end up as high-rise litter. As your plant grows taller and bigger, a gust of wind can easily topple the entire pot. So avoid depending on the weight of the pot for stability.

3 Choose the plants

Start with something simple. I recommend spring onion, basil, mint, chilli and pandan for a start. At the next level, you can try cherry tomato, lady's finger, bell pepper, *kai lan* and lettuce. You can get them from a nursery or buy the packaged seeds. Otherwise, you can try growing them from the seeds of the fruits you buy from the market (works for cherry tomato, bell pepper and chilli).

4 Getting your equipment

If you are not getting pots and intend to use upcycled materials, ensure that you have holes at the bottom of the containers and a filtration layer in it before adding your soil. There are guides available online on how to do it.

5 Find your co-farmer

Try to look for more than one farmer. If you are doing this in your office space, it would be fun to do it with your colleagues.

6 Change and rotate

For sustainability, I recommend changing the plant or the vegetable from time to time. After each harvest, try something new.

7 Have some fun

Last but not least, have fun and enjoy the rewards of your efforts. ◆

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