
SMA



For Doctors, For Patients

news

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AI & DIGITALISATION

SHAPING THE FUTURE OF HEALTHCARE

A Day in the
Future of Healthcare

**2020: The Year
of Introspection**



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

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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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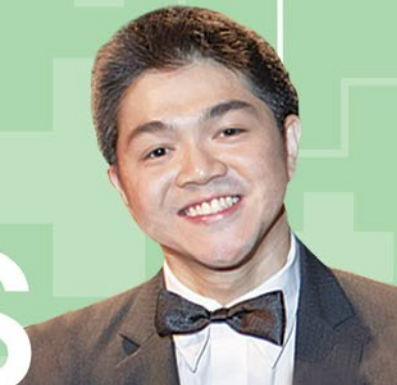
Calendar

30 SMA Events Feb-Apr 2020





The EDITORS' MUSINGS



Tan Yia Swam

Editor

Dr Tan is learning new skills and stretching new boundaries in her private practice. Meanwhile, she still juggles the commitments of being a doctor, a wife, the *SMA News* Editor, the Vice-President of the SMA and a mother of three. She also tries to keep time aside for herself and friends, both old and new.

Welcome to 2020! When I was a child, 2020 seemed like the age of science fiction, complete with flying cars and talking robots.

How far have we come then? While we marvel at reports of contact lenses capable of reading blood sugar, or portable ultrasound on your iPhone, we also still see problems with paper getting jammed in printers. There is a great disparity in implementation and this is due to many reasons – cost, ease of use and concerns over safety.

Have you heard of artificial intelligence? How can it be applied to our medical work? What are its pros and cons? In this issue, we explore some of these exciting developments.

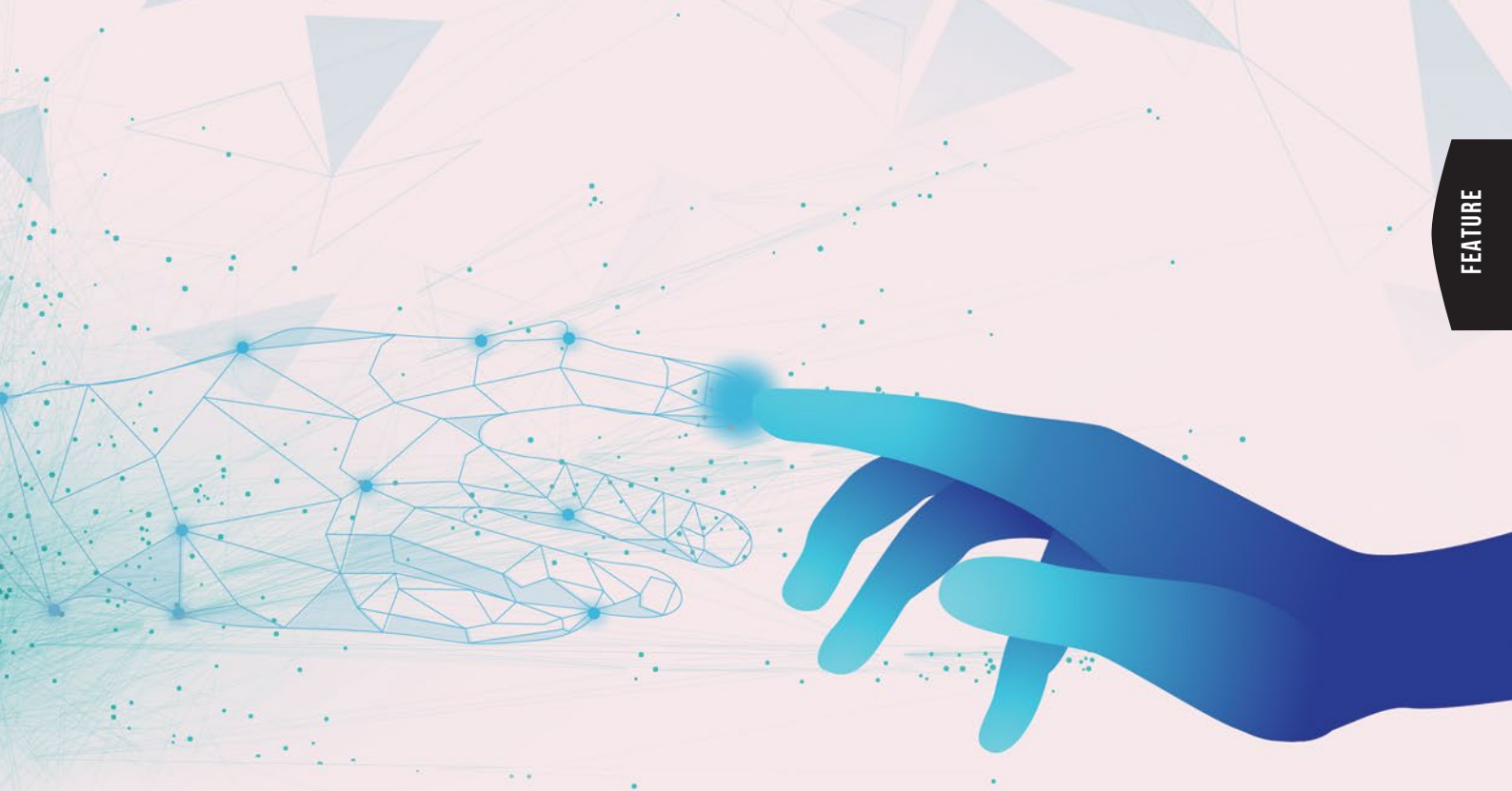
Digital technology is now a big part of our lives and has gradually taken hold of the healthcare landscape. The World Health Organization has released new recommendations on the ways that countries can use digital health technology on mobile phones, tablets and computers to improve health services. Singapore stands tall in Southeast Asia as a leader in digital healthcare, driven by our Government's promotion of information technology adoption and innovation in healthcare, strong internet connectivity (sometimes still lacking though) and high mobile phone and smartphone penetration. We now have numerous homegrown enterprises and applications, both in the public and private sectors, which are leading and shaping the next generation of healthcare services. Doctors all over Singapore are developing cutting-edge artificial intelligence solutions for their

Jipson Quah

Guest Editor

Dr Quah is a GP and pathology clinical officer in private practice. He enjoys music-making, fitness activities and editorial work in his spare time.

respective disciplines, especially in fields such as radiology, ophthalmology, pathology and dermatology. However, even as the digital wave washes into our lives and medical practice, let us remind ourselves to also make time for the less fortunate and to appreciate the nature around us. I hope our SMA readers will find this issue an engaging read. ♦



A DAY IN THE FUTURE OF HEALTHCARE

Opportunities and Challenges for Big Data and the Internet of Things

Text by Dr Calvin J Chiew, Dr Gan Wee Hoe and Prof David Koh

Dr Chiew is a Senior Resident in Preventive Medicine with a special interest in health data science and medical informatics.



Dr Gan is a specialist in Occupational Medicine and Aviation Medicine, and Deputy Chief Medical Informatics Officer at the Singapore General Hospital.



Prof Koh is a Distinguished Professor of Occupational Health and Medicine at the Universiti Brunei Darussalam and Professor at the Saw Swee Hock School of Public Health at the National University of Singapore.



Big data and the Internet of Things (IoT) are some of the disruptive technologies set to transform healthcare. Big data is defined by its three “Vs” – volume (data with much more observations/variables than previously), velocity (data updated very frequently or at real-time, often automatically) and variety (combining different types of data from multiple sources into a single dataset for analysis).¹ IoT refers to the interconnection of devices (or “things”) via the Internet, enabling them to interact and exchange data. An IoT network consists of sensors that collect data, which are processed and synthesised by servers in the cloud, and linked to actuators that respond appropriately.² In the imagined scenario below, the state of development of big data and IoT is much more mature than what it currently is.

A day in the future of healthcare

Mr Lim awakens to prepare breakfast. Immediately, his smart home IoT assistant displays a list of recommended meals, based on current stock in his fridge and blood glucose readings from his wearable biosensor. He chooses chicken omelette and is guided along the recipe by the assistant, and adds just the right amount of seasoning for a healthy meal. Mr Lim has not taken his RFID-tagged medications and insulin injections yet, and the assistant reminds him to do so, while titrating his morning insulin dose based on the meal he is about to have and his usual physical activity profile.

After breakfast, Mr Lim has his regular follow-up teleconsultation with his GP, Dr Wong. He speaks to Dr Wong on his smart television and together, they review blood glucose and other charts generated by Mr Lim's cloud health assistant. Mr Lim's diabetes is well controlled, but his blood pressure is still suboptimal. Based on Mr Lim's genetic data and the response profiles of millions of other similar patients, the clinical decision support recommends switching Mr Lim's antihypertensive drug. Mr Lim agrees and orders the new medication via an online pharmacy. The entire teleconsultation is documented by an artificial intelligence (AI) scribe.

As Mr Lim is about to watch a movie, the cloud health assistant gently notifies him that he has fallen behind his friends in overall exercise rates for the week. Determined to get the rebates offered by his medical insurer for reaching the next tier of activity, he quickly gears up for a jog at the nearby park. While jogging, his smart watch sounds an alert notifying him of a transient arrhythmia. He answers a few simple questions about his symptoms via a mobile app. The health assistant determines his condition to be non-urgent and advises him to stop exercising for now. With Mr Lim's permission, it arranges for a cardiologist assessment the next day and shares his medical records, including the ECG tracings from his smart watch, with the relevant hospital department.

On his way home, Mr Lim receives another alert – this time a community call for help at a nearby location. Guided by an augmented reality map, he rushes to the scene to find a collapsed elderly man. He begins to perform CPR as guided by the mobile app, while a drone dispatched by the neighbourhood polyclinic arrives at their exact spot carrying an AED. He removes the AED from the drone and attaches it to the man. Just then, paramedics, having been activated automatically by the man's fall monitor, appear and take over. Mr Lim watches as the ambulance carrying the man whisks away, with the traffic control system pausing vehicular traffic at each junction to allow the ambulance quick and safe passage.

Obstacles to opportunities

As illustrated, big data and IoT have the potential to benefit patient safety, compliance, behaviour modification, navigation of the healthcare system, the practice of evidence-based and precision medicine, and much more. However, before these opportunities can be realised, several key challenges must be addressed.³

Firstly, fragmented systems need to be integrated. Pieces of the data systems and technologies described in the scenario already exist today. The next

step is to connect them into a network that can generate value. The difficulty lies in integrating the rapidly increasing number of systems and in curating useful data from noise. Not only are current data sources in silos, but analytic efforts are also largely fragmented. Most of our current analytics projects are ground-up initiatives addressing individual use cases. We need an overarching strategy and architecture to build cross-linkages and synergy across these disparate threads.

One related roadblock is “territorialism” – the notion that data must be jealously guarded and hoarded by its owner. But to whom does the data really belong? While healthcare institutions are custodians of clinical data, we argue that they belong ultimately to the patients, and any insights that can be gained belong to society as a whole. Therefore, we have a duty to work together to unlock the full potential of these data.

Secondly, we need to build the culture of a “data-driven organisation” in our healthcare system.⁴ This means the entire enterprise embracing data as a strategic asset for improving patient care. Many of the current analytics projects end in research publications and are not translated clinically. We must not be afraid to “trial and fail”, as adoption ultimately depends on clinical impact on both patients and providers. In line with a “start small, act fast” mentality, we should develop mechanisms to rapidly test and evaluate new ideas and prototypes. Some physicians may worry that these technologies will replace them, but this is unlikely. Having big data will not eliminate, but will in fact increase, uncertainty. The value of doctors will lie in the greyscale space, and in explaining to patients their data and supporting them in decision-making through uncertainty.

Thirdly, privacy and ethical questions need to be answered. Cybersecurity will always be hard because it is a negative goal. We have to consider all possible ways an adversary might compromise

our system, and there are infinite ways. Perhaps a mindset shift could alleviate our need for complete security. After all, our email and social media accounts often contain more private information about us than our health records. This is not to say that we should abandon security, but rather adopt a more open attitude towards sharing medical data, especially if doing so contributes to our collective wisdom and may benefit population health in ways we cannot yet foresee. Beyond privacy, there are other ethical quandaries, such as who is accountable for wrong recommendations and decisions? How do we train a machine to act with fairness and sensitivity when human bias is inherent in the data? As different societies have different views, we need to debate these questions before we can accept and harness these technologies.

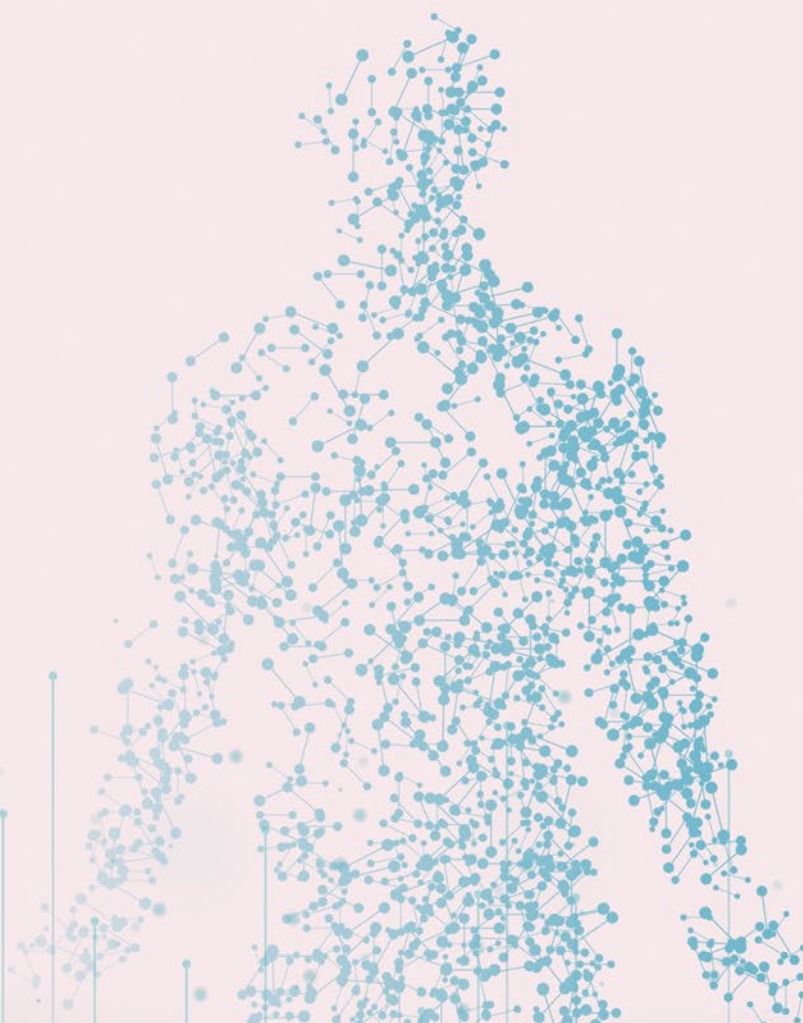
Concluding words

Disruptive technologies such as big data and IoT will improve access and timeliness to healthcare. However, issues relating to fragmented systems, data literacy and ethical concerns must be tackled. We must also be prepared that the interface of healthcare will change, from one that is currently human touchpoint-centric, to one that is more virtual. Future populations will need to adjust their expectations of how care is communicated and delivered. ♦

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ARTIFICIAL INTELLIGENCE

Text by Dr Lee Yik Voon

I recall reading a science fiction series when I was younger. It was the *Foundation* series on the story of a psychohistorian, where past history is used to predict how humans should react to future events and exceptions to apply when unexpected events occur.

That was probably the first time I came across anything close to artificial intelligence (AI). Nowadays, we think of AI as a machine with the ability to correctly interpret available data, to learn from such data and to use those learning to achieve specific goals and tasks.

What is AI really to us? We have seen movies that depict robots with AI taking command of our lives, taking over the world or even being a danger to humanity. We have heard in various media that AI can take over our jobs and create mass unemployment, but which type of jobs are most likely to be taken over by AI? We are not sure. Despite feeling confident that our job as medical healers will be least likely to be replaced, our minds still play tricks on us from time to time.

Between the late 1990s and early 2000s, AI began to be employed in areas such as logistics, data mining and medical diagnosis, to name a few. As the computational power of computers increases exponentially, AI's prowess also increases by leaps and bounds.

High-profile examples of how AI is used include autonomous vehicles

(eg, drones and self-driving cars), medical diagnoses, art (eg, poetry), mathematical theorems, games (eg, Chess and Go), search engines (eg, Google), online assistants (eg, Siri), facial recognition in photographs, spam filtering, flight delay predictions, judicial decision predictions, online advertisement targeting, energy storage, and even helping news agencies post stories more effectively to generate higher traffic.

AI in healthcare

The faster computers, algorithmic improvements and access to large amounts of data enabled advances in various types of AI, of which machine learning with neural networks and deep learning, natural language processing, rule-based expert systems, physical robots and robotic process automation are just a few that are relevant to medical science and healthcare.

These technologies have the potential to transform many aspects of healthcare, as well as administrative processes between providers, payers and pharmaceutical organisations. Some examples are listed below.

Advancing surgery methods

A medical team at the Children's National Medical Center, Washington, successfully demonstrated a supervised surgery where

an autonomous robot stitched together a pig's bowel during open surgery.

Many such robots exist today, one of which is the da Vinci Surgical System, a robotic surgical system controlled by a surgeon from a console that facilitates minimally invasive surgery.

Classification

AI can be used to determine whether to automate initial evaluation of a CT scan or ECG, or to identify high-risk patients for population health.

Precision medicine

AI is used to correctly determine the accurate dose of immunosuppressant drugs to give to organ transplant patients.

Microsoft's AI "Hanover" helps doctors to find the right treatments for cancer. With more than 800 medicines and vaccines, the machine memorises all the papers relevant to cancer and helps predict which combinations of drugs will be most effective for each patient.

AI can also be used to monitor multiple high-risk patients based on data acquired from live doctor-patient interactions.

Transfer learning

In ophthalmology, a machine can perform a diagnosis similar to a well-trained ophthalmologist and generate a decision within 30 seconds on whether or not the patient should be referred for treatment, with more than 95% accuracy.

Concerns with AI adoption

Many AI projects have shown that they can accurately diagnose and treat disease with methods, but they are not yet adopted for clinical practice as they are not substantially better than human diagnosticians, and have poor integration with clinician workflows and medical record systems.

Many AI projects are standalone in nature or address only a single aspect of care. They are often not able to handle the explosion of data and knowledge based on genomic, proteomic, metabolic and other approaches to care.

An example would be IBM's Watson, well known for its focus on precision medicine, in particular cancer diagnosis and treatment. However, enthusiasm faded quickly when potential customers realised the difficulty in teaching Watson how to address particular types of cancer and integrating Watson into care processes and systems.

Patient engagement and adherence has long been seen as the "last mile" problem of healthcare. The more patients proactively participate in their own well-being and care, the better the outcomes in utilisation, financial outcomes and member experience. When a patient does not follow his/her treatment plan or take the medicine prescribed as recommended, it becomes a major problem. The reasons for poor compliance and non-compliance are increasingly being looked into and studied by AI and big data.

Experimentation with chatbots for patient interaction, mental health, wellness and telehealth has been applied for simple transactions like refilling prescriptions or making appointments. User surveys revealed several concerns, some of which include revealing confidential information, discussing complex health conditions and poor usability.

Opinions have been voiced concerning AI leading to automation of jobs and replacement of the workforce. However, a number of external factors that limit job loss include the cost of automation technologies, cost of connectivity and power, and the labour market growth and its cost. The benefits of automation beyond simple labour substitution, as well as regulatory and social acceptance, are only a suspicion.

The healthcare jobs most likely to be automated would be those that involve dealing with digital information (eg, radiology and pathology), rather than those with direct patient contact.

Even so, our radiologist colleagues are not likely to be put out of jobs as they do more than just reading and interpreting images. Radiologists also consult with other physicians on diagnosis and treatment, provide treatment options (eg, local ablative therapies), perform image-guided medical interventions (eg, cancer biopsies and vascular stents), define the technical parameters of imaging examinations to the patient's condition, relate findings from images to other medical records and test results, discuss procedures and results with patients, and others.

Also, for automated image analysis to take off, there need to be substantial changes in medical regulation and health insurance. Similarly for pathology and other digitally oriented aspects of medicine; hence, we are unlikely to see substantial change in healthcare employment due to AI over the next two decades or so. Rather, it is more likely that new jobs will be created to work with and develop AI technologies.

Ethical implications

Finally, there are various ethical issues about the use of AI in healthcare. Current healthcare decisions are made by humans. If AI were to be used, it will raise issues of accountability, transparency, informed consent, regulation and confidentiality.

I see transparency as the most difficult issue. Many AI algorithms, for example the deep learning algorithms used for image analysis, are practically impossible to interpret or explain. Physicians, familiar with their operations, may find it very hard to explain to these patients how an image has led to a diagnosis of cancer.

Mistakes will undoubtedly be made by AI systems in patient diagnosis and treatment, and it may be difficult to establish accountability, let alone responsibility.

We know that patients prefer to receive medical information and advice from an empathetic clinician instead of a cold AI system.

AI in healthcare may also be subjected to algorithmic bias. Sometimes, the prediction of a greater likelihood of disease

is based on gender or race, when these may not actually be the causal factors.

Looking ahead

In the roads ahead, we will encounter many ethical, medical, occupational and technological changes with AI in healthcare. It is important that the various healthcare stakeholders form a framework to monitor key issues and establish governance mechanisms to limit negative implications over a longer term period with frequent and regular reviews and revisions.

I think that AI systems will not replace human clinicians on a large scale, but instead it will augment their efforts to care for patients. Over time, human clinicians may move toward tasks and job designs that draw on uniquely human skills like empathy, persuasion and big-picture integration. Perhaps those who lose their jobs may only be those who refuse to work alongside AI.

We are in the exciting times of rapid adoption of AI in our world and one needs to be mindful and discerning what AI can do to make our lives better instead of fanatically chasing it like paparazzi going after celebrities.

Like all things, they have their own strengths and weaknesses, and looking at them with clear glasses will make it safe to be used in humans for healthcare. This will allow for AI to be a valuable partner in healthcare application. ♦

Further readings

1. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare. *Future Healthc J.* 2019; 6(2):94-8.
2. Artificial intelligence. Wikipedia. Available at: <http://bit.ly/2ZJUvKr>.

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.



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.



Joint AMS-CFPS-SMA statement on MOH workgroup recommendations

The Academy of Medicine, Singapore (AMS), College of Family Physicians Singapore (CFPS) and the SMA issued a joint statement on 3 December 2019, in response to the recommendations of the Ministry of Health (MOH) Workgroup to Review the Taking of Informed Consent and the Singapore Medical Council's (SMC) Disciplinary Process.

Details of the Workgroup report can be found here: <http://bit.ly/34jp8Hm>.

To protect the interests of the public and confidence in the healthcare system, the three professional bodies maintain that self-regulation of the medical profession by the SMC remains the best way forward. Therefore, our hope is that these recommendations will build up the competencies of the SMC and improve its processes.

The joint statement can be found here: <http://bit.ly/SMAstatements>, under the "Complaints and Disciplinary processes" category.

Re-appointment of *SMJ* Editor-In-Chief

A/Prof Poh Kian Keong has been re-appointed as Editor-in-Chief of the *Singapore Medical Journal (SMJ)* for another term, for the period 1 January 2020 to 31 December 2021. The SMA Council thanks A/Prof Poh for his contributions and looks forward to working with him to improve the quality and impact of *SMJ*. ♦

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TO **SHARE?**



SMA News welcomes your thoughts on issues that maybe of interest to you as a medical practitioner. If you would like to submit a response to our articles or write an article on something that you are passionate about, please email us at news@sma.org.sg.



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Jointly organised by the SMA Centre for Medical Ethics and Professionalism (SMA CMEP)
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SEMINAR ON PERSONS WITH INTELLECTUAL DISABILITIES

COMPLIMENTARY
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4 April 2020, Saturday • 1 pm to 5 pm
2 CME Points
(Pending Singapore Medical Council's approval)

Target audience: GPs, Paediatricians,
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Objectives

This seminar enables clinicians to...

- Understand the unique and psychosocial issues surrounding Persons with Intellectual Disabilities (PWIDs) in Singapore
- Perform Mental Capacity Assessments and apply the Questionnaire Tool to gather appropriate information during the deputyship application process for PWIDs
- Fill out the appropriate court requirement forms and medical reports needed for deputyship application for PWIDs under the Mental Capacity Act
- Develop a comprehensive report that could assist in the future care of PWIDs by the court-appointed deputy and all other caregivers

Topics*

Introduction to PWIDs

Background of PWIDs

Overview of Mental Capacity Assessment for Doctors

Assessing Mental Capacity with the Assessment Tool

Panel Discussion – Questions and Answers

*Subject to minor changes

Speakers / Panellists

- Dr T Thirumoorthy, Academic Director, SMA CMEP; Associate Professor, Duke-NUS Medical School
- Dr Bhavani Sriram, Consultant Paediatrician and Neonatologist, Minds Developmental Disabilities Medical Clinic
- Dr Wei Ker-Chiah, Chief, Department of Community Psychiatry, Institute of Mental Health
- Dr Giles Tan, Senior Consultant, Department of Developmental Psychiatry, Institute of Mental Health
- A/Prof Ruby Lee, Associate Professor, National University of Singapore Faculty of Law

For more information or registration, please visit <https://www.smacmep.org.sg> or
contact Jasmine Soo at 6223 1264 or cme@sma.org.sg.



The Year of Introspection

Text by Dr Ganesh Kudva, Editorial Board Member

2020 is upon us! The subject of many a science-fiction feature of yesteryear, 2020 is a year we once may have envisioned humanity existing in Blade Runner-esque cities, with genetic engineering rampant and robots commonplace. It's fair to say that we aren't living in a world as advanced as that, but one that is probably as dystopian and confusing.

Healthcare is a microcosm of the state of the world, and if the last decade is anything to go by, we need to be braced for an impending era of dramatic change. For decades past, doctors have had to adapt to the changing face of medicine – new fields have emerged, new modalities have surfaced and new knowledge has been created. But the advent of the 2020s carries with it the possibility of the most fundamental change of all – the possible shift away from the doctor.

We already see changes all around. The rise of telemedicine services has brought into question the need for the traditional brick-and-mortar clinic. Improving patient knowledge means that the doctor no longer has a monopoly on medical knowledge, and with it, there is a need for more shared decision-making. A greater respect for patient autonomy means that patients, and not doctors, are increasingly becoming the main decision makers on medical matters. The advent of artificial intelligence (AI) and apps that can track everything, from our vital signs to our mood, begs the question of whether eventually, the doctor, that physical human being bestowed with the responsibility of being a guardian of health, will eventually be replaced.

The twin threat to the existence of the doctor stems not just from AI but

also from the burgeoning prominence of alternative facts. Whereas once statements based in fallacy were beliefs held by a fringe, we now see entire societies and leaders base their policies and decisions on a set of information that deviates from the body of truth, held with a deeply entrenched conviction. Perhaps the rise of egocentrism has convinced people that a commonly held truth is non-existent, and what is true is only what we ourselves perceive to be true. While this divergence from the truth is at times comical and at other times controversial, when it comes to healthcare, it can be catastrophic. When people no longer believe in the facts of medicine, they make contrarian decisions that may no longer be in their own best interests. These decisions can be harmful to themselves, their families, and in the case of the anti-vaccination movement and the loss of herd immunity, the community. It is ironic that in the day and age of globalisation and rapid development, we see age-old diseases that were once eliminated due to vaccination, re-emerge due to fervent beliefs based in fallacy.

Doctors also now work in a more complex environment of greater administration and legislation. While regulation, by curbing errant practices and ensuring safety of patients and research subjects, is a good thing, an overly litigious environment may have the opposite effect on patient safety. Afraid to venture into new areas of research due to substantial red tape, or wary of trying new procedures due to the risk of litigation, doctors may stick to the tried and tested, and the medical field may thus become stagnant and

sclerotic. When the endeavour to reach new shores is one that is hindered by rampant red tape and constant legal risks, the temptation to stick to familiar, and possibly safer (for the doctor) shores may prove to be overwhelming. This is to the detriment of medicine and to society.

What is one to make of the decade just passed? We entered 2010 excited about the prospect of an interconnected world and beginning our embrace of social media. We end it with greater physical connectivity but with a contagion of loneliness and yawning divisions. Perhaps though, with undying determination and an unyielding will to work towards a better tomorrow, healthcare and humanity shall prevail through these dark times. ♦

Dr Ganesh is a doctor at the Institute of Mental Health who is passionate about mental health and public policy. In his free time, he avidly follows his favourite team, Liverpool FC, and travels widely. Each country he visits makes him realise how alike we all are to each other and how much more united mankind should be.





PHYSICIAN, DISRUPT THYSELF

A Cautionary Tale of the Incumbent's Dilemma in the Digital Age

Text by Dr Charlene Liew

Two nights before my birthday, I had a vivid dream that took me back many years, to when I was a junior doctor in the wards. Strangely enough, I'd never dreamt about the past before. The mind plays psychological tricks on you close to birthdays.

The thing about dreams is that they can take you far into the future or far back into the past. Many years ago, when the news of Apple Inc's plan to build a smartphone broke, Palm Inc's chief executive officer Ed Colligan responded, "We've learned and struggled for a few years here figuring out how to make a decent phone. PC guys are not going to just figure this out. They're not going to just walk in."

My chosen specialty, radiology, is right at the forefront of this

technological change, with more than 70 percent of our work taking place in the digital space. Much like other industries which have undergone disruption, we are the proverbial canary in the coalmine, the first to be impacted significantly. At the same time, like the Chinese word for crisis: 危机 (wēi jī), which can be taken to mean both "danger" and "opportunity", we are also in the privileged position of the first mover. That is, if we choose to take the chance.

Herein lies what we term the "incumbent's dilemma": the same processes, assets and rules which made our field great in the first place may be the very same roadblocks preventing us from moving forward in this digital world. Just ask Nokia,

Motorola and the blockbusters of the world, whose size, complexity and fixed ways of doing things became obstacles to change.

Digitisation of healthcare: an ongoing process

The adoption of electronic medical records (EMR) has been a gradual and ongoing process for the past ten years. EMR systems have been a great boon for healthcare systems, providing doctors with access to medical records from all interlinked public healthcare institutions so that care is continuous and patients can experience seamless transitions from hospital to community and from specialist centre to non-specialist centre. The increasing digitisation of medical

records may have had unintended consequences though: doctors now spend more time on digital record entry, which can detract from time spent communicating with patients. However, artificial intelligence (AI)-assisted scribe systems which can accurately take down physician notes using voice commands may help alleviate this issue. Furthermore, EMR systems generate a huge amount of data, mostly unstructured, and are therefore “trapped”. The ongoing challenge now is to implement EMR systems that are contextual, searchable and structured, so that this data can be harnessed for population-based research leading to new insights and discovery.

What does it mean for you?

If you are a patient (most of us are, including myself), then you already know that things will never be the same. Most of the changes we experience will increase convenience for patients and caregivers. Some are already in use; you can use telemedicine for GP consultations, book appointments on your smartphone and access some of your medical records online. These help us spend less time in queues and shuttling about hospitals, and make the running of our lives increasingly efficient. Big data is poised to be the epidemiologist’s and public healthcare doctor’s silver bullet, allowing them to predict where the next cluster of flu or dengue fever will erupt so mitigating action can be taken.

The next wave of change we will see is in the sphere of clinical medicine which directly impacts, and hopefully improves, clinical outcomes. These will include early warning systems for discharged patients at risk of readmission, inpatients at risk of acute kidney injury or the deadly and swift killer – sepsis – and those at risk of falls. These systems will begin to positively impact lives, saving

thousands, if not millions, of quality-adjusted life-years worldwide.

Eventually, digital transformation and AI will transform the whole of healthcare and bring in new models of care, some of which are currently being developed. In the realm of imaging, opportunistic screening for cardiovascular risk may occur with routine images taken for other purposes, and screening for cancer and neurodegenerative conditions in our bodies can be partially automated and may be as commonplace as sending our cars for an annual inspection check. We may be told at a young age which diets to adhere to and avoid, and at a ripe old age which symptoms to be aware of and what personalised medicines to take. In this utopian picture of the future, we should also be prepared to live much longer and healthier lives.

Keeping data safe

Cybersecurity will continue to be a clear and ever-present risk that we will have to contend with. With our records digitised and replicated within Singapore’s medical electronic systems, we as clinicians will extend our doctor-patient relationship and fiduciary duties into cyberspace, ensuring that these systems are limited to medical usage only and not sold for profit, while also making sure that our patient’s privacy is even more tightly guarded by anonymisation and encryption than it ever could be under physical lock-and-key. Already, in several industries such as banking, data may be moved back and forth on Singapore-based cloud servers. Similarly, for healthcare, the cloud must be secured with defence-grade, un-hackable perimeters.

Moving forward

Medicine has always been, and will continue to be, a “high-touch” profession. Digital automation will help unshackle doctors from much of the mundane and soul-draining

manual entry of clinical records, and allow us to become more like the doctors of yesteryear – at our patients’ bedsides where we are needed most.

What this means for jobs in my area of practice, and everyone else working in today’s industrial revolution 4.0, is that we need to be acutely aware that the assets, services and processes that once made our profession a success will not ensure success in the future and may actually hold us back. Symptoms of this “incumbent’s reflex” are the reticence to go on the offensive or to disrupt our own model of practice. Since healthcare is more tightly regulated to protect patients as compared to other industries, this may be a good reflex to have while balancing on a tightrope between moving forward and being left behind. One must reflect upon the medical traditions gifted to us by generations of our founding doctors, and carry those whispery dream-voices of wisdom with us, while steadily fixing our gaze and planting our next steps towards the future. ♦

Dr Liew (FRCR) is the Deputy Chief Medical Informatics Officer, and a chest-trained radiologist working at Changi General Hospital. She co-founded the Artificial Intelligence and Informatics section of the Singapore Radiological Society. She does miss spending more time with patients, and hopes she was prescient many years ago in choosing to be at the digital coalface that she may help to shape the progress of medicine’s future.





TELEMEDICINE

Medical Goldmine or Minefield?

Text by Dr Jipson Quah,
Editorial Board Member

The use of telemedicine by doctors and patients alike is gradually gaining acceptance in the healthcare landscape. The global telemedicine market has been valued at US\$40 billion in 2018 and is expected to reach US\$148 billion by 2025. Singapore is the only country in Asia with regulated telehealth guidelines and this has led to a thriving start-up ecosystem of digital health providers. Within Singapore, more than twelve telemedicine start-ups operate in accordance with the Ministry of Health clinical and data governance, which ensures that all the practices done in applications are up to professional and ethical standards. More healthcare organisations, including medical practices and third-party providers, are looking towards the adoption of these telemedicine platforms. However, in digital healthcare innovation, there are potential pitfalls and numerous obstacles to adoption.

According to the National Telemedicine Guidelines, telemedicine can be broadly categorised into four domains:¹

1. Tele-collaboration – interactions between (facility-based or mobile) on-site and remote healthcare professionals for clinical purposes. Healthcare professionals are involved at both ends of the interaction and a patient may or may not be involved in the same telemedicine interaction.
2. Tele-treatment – interactions between remote healthcare professionals and patients/caregivers for the purposes of direct clinical care. A patient or caregiver is directly involved at one end of the interaction and this creates a professional-patient relationship.
3. Tele-monitoring – the direct collection of biomedical and other forms of data from patients or caregivers by remote systems, which are used by healthcare professionals for clinical purposes such as vital signs monitoring and home nursing. There may not be a need to create a professional-patient relationship even though the healthcare organisation as a whole might owe a duty of care to the patient.
4. Tele-support – the use of online services for non-clinical (ie, educational and administrative) purposes to support the patient and caregiver.

Different telemedicine apps such as MaNaDr, DoctorAnywhere, MyDoc, HiDoc and Speedoc are popular leading homegrown apps where a patient can contact a local doctor with a few taps. Key features of these apps include appointment creation, video/text consultations, and the prescription of medicine and medical leave. In this article, I shall be highlighting some of the lesser-known but equally unique aspects of several telemedicine services.

Video/text consultations

Most applications like DoctorAnywhere, MaNaDr and MyDoc provide video call platforms on which patients can call a doctor. A simple consultation can be performed with medical advice, medicines and medical certificates subsequently prescribed to the patient. Like many of the other apps, MyDoc recommends the use of its telemedicine feature for 18 common ailments (which include flu, headache, gastroenteritis, etc) and for travel medicine advice. MyDoc clinicians are trained to treat common ailments effectively via the virtual clinic feature. If complicated ailments are detected upon triage, they are referred to MyDoc panel clinics for a physical consultation. MaNaDr, another leading telemedicine provider, also provides a platform for text consultations, similar to WhatsApp or Telegram messaging, without the need for face-to-face video calls. iDOC Clinic has also partnered with Unity Pharmacies to provide in-pharmacy remote video consultations, prior to the prescription of controlled medicines.

In Dr Kenneth Lyen's article published in the January 2019 issue of *SMA News* (<http://bit.ly/365mXii>), he discusses some drawbacks of telemedicine, including the possible overlooking of diagnoses and the inability to use our senses and clinical judgement. Essentially, doctors are limited to patients' own accounts of their

illnesses and are not able to utilise their full faculties for a comprehensive patient assessment. A mild fever could very well be masking sepsis, or acute abdomen or subarachnoid haemorrhage in different patient populations. Holistic care? Highly unlikely – more like a minimalist approach to basic medical care.

Personalised concierge medical services

Speedoc and JagaMe distinguish themselves from other telemedicine applications, through the provision of concierge medical house call and nursing services. It is highly useful for patients who may urgently require medical attention while facing caregiver or mobility issues. Speedoc allows the patient to request for a house call from a Speedoc medical doctor, who is provided with a medical bag, stocked with basic medications and emergency drugs. JagaMe offers caregiving services, nursing procedures and appointment accompaniment services. These apps have improved patients' accessibility to affordable medical and nursing services. Doctors who may not provide round-the-clock medical care may also refer patients to utilise these quality digital healthcare solutions when needed. Regular catheter changes for your bed-bound patients? Who you gonna call?

Marketplace for patients

DoctorAnywhere, one of the leading telemedicine providers in Southeast Asia, also provides an online marketplace where patients can purchase supplements, medical equipment and health screening packages. Other than the nearest hospital or retail pharmacy, clinicians may not know where else to direct patients to purchase supplements or home monitoring medical equipment. A dedicated online marketplace for medical supplies is a valuable resource for doctors to refer patients to. If consultation and prescriptions are required for certain products, the patients are then advised to seek a medical consultation via the DoctorAnywhere application.

Specialist medical care and tele-collaboration

For a consultation fee of S\$120, users of HiDoc are able to consult medical specialists at the Singapore Medical Group via a video call. They may also specify details about their condition and receive a report from the specialist within 24 hours. Users can also schedule in-person consultations via the app. These functions improve accessibility to medical specialist opinions and is a convenient means of communication for patients, primary care providers and specialists. MaNaDr has also recently launched a doctor-to-doctor communication service which may eventually prove to be extremely useful in effective specialist referrals and multidisciplinary management.

Tele-support and education

As opposed to consulting "Dr Google" which often bombards patients with overwhelming volumes of information and frightening diagnoses, the DoctorxDentist website forum allows patients to ask targeted medical questions and seek precise answers from doctors from different specialties. This creates a useful and accurate treasure trove of medical information and advice, which is constantly refreshed and updated for the benefit of patients. Doctors may utilise these forums to properly educate their patients beyond using conventional medical brochures.

LearningIn10 is a free digital library of educational medical video content created in collaboration with SingHealth, Duke-NUS Medical School and Duke University, covering over 300 medical specialties. This digital medical library, which is also available on YouTube, aims to benefit healthcare professionals and members of the public, and consists of education modules that provide an insightful overview of specific medical topics.

Integration of AI

Medgic is a locally developed advanced mobile application that utilises artificial intelligence (AI) to scan photos and suggest dermatological diagnoses. It seeks to detect, appraise and check for dermatological diseases or conditions, analyse skin health and recognise potential skin problems. Although it has

not been approved for making formal diagnoses, it serves as a model for the development of AI in medicine, which may, in the future, assist doctors in clinical diagnosis and decision-making.

Digital security

As with any telemedicine service and electronic medical record, proper documentation, medical indemnity, personal data protection and technical/connectivity issues are imperative to address. A lagging video with poor sound, though annoying, is a minor problem. A lawsuit arising from medical negligence is a larger problem. A catastrophe that may arise is the potential loss of millions from the hacking of thousands of medical records and payment details.

With the overwhelming digitisation of healthcare, it is important that SMA helps doctors and other related medical professionals keep abreast of the digital developments in the healthcare space, through regular *SMA News* articles and SMA seminars. One example would be the recently concluded Annual Medico-Legal Seminar 2019, jointly organised by SMA and the Medico-Legal Society of Singapore, which brought together medical, legal and cybersecurity professionals in a highly educational two-day event. I was delighted to glean many insights into the delivery of digital healthcare and telemedicine through this seminar. ♦

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Dr Quah is a GP and pathology clinical officer in private practice. He enjoys music-making, fitness activities and editorial work in his spare time.



CHANGING CLINICAL RESEARCH LANDSCAPE IN SINGAPORE AND THE IMPACT OF HBRA

Text by Dr Charumathi Sabanayagam

Clinical research, including clinical trials, is the foundation for evidence-based medicine and is critical for the discovery of new treatments and prevention methods. In the past decade, the protection of human rights, and the safety and welfare of research participants, is seen as being increasingly important in clinical research studies. Clinicians and researchers now spend a considerable amount of time on “administrative matters” to comply with requirements set by regulatory agencies and funding bodies. In the era of big data with personal data protection laws and transparency obligations, regulatory requirements are complex. The sharing of data and use of participants’ data for future research require participants’ consent or anonymisation/de-identification to protect their privacy. Following the direction taken by countries with well-established biomedical research sectors, such as the US, the UK and Australia, the Ministry of Health recently implemented the Human Biomedical Research Act (HBRA)¹ on conducting human biomedical research and handling of human tissue.^{2,3}

In this article, we focus on the challenges faced by researchers in complying with the recent regulations in biomedical research in Singapore. The HBRA requirements on appropriate consent for use of identifiable Health Information (HI) or human biological materials (HBM) and de-identification have caused significant confusion and delays in the recruitment and progress of research studies.

Informed consent vs appropriate consent

Traditionally, informed consent was designed to deal with a single study, with a specific purpose and a pre-defined time span. The goal of the informed consent process is to clearly convey all information pertaining to the research study to the participants to help them understand and voluntarily provide their consent for participation. However, with the rise of big data and data sharing, data collected could be kept for long periods of time, used in multiple studies with different research purposes, linked to heterogeneous sources and shared widely with other investigators. To allow for future use, in the “appropriate consent”, separate consents for re-identification in case of incidental findings and future use of data and tissue have been introduced.

With the introduction of appropriate consent, explaining additional consent elements has made the consent process longer (an increase from approximately 15 minutes to approximately 30 minutes) and more difficult to understand – both of which adversely affect participants’ overall experience in the research study and increase their unwillingness to participate in future studies or follow-up visits. The many components in the appropriate consent form render participants, especially the elderly, confused, apprehensive and doubtful of the integrity of the research. For example, explaining the terms “giving up intellectual property rights” and “human-animal combination” could result in them

refraining from participating in studies even with minimal risk. Participants often feel overwhelmed by the information overload and the process is stressful for most of the Asian participants who do not have adequate health literacy as compared to Westerners.

Obtaining re-consent

Obtaining re-consent from participants for blood/urine collection (interventional) in ongoing studies that had already commenced recruitment using the existing “Core Consent Elements” may likely cause anxiety in some participants who may feel that their privacy has been violated, in addition to the extra time and resources required to obtain re-consent. Since the activation of the HBR framework in November 2017, several versions of the consent forms have been released by the Institutional Review Board, and this has led to significant amount of time and effort being expended on amending and tracking the various versions.

Collaboration and data sharing

The requirement to have a trusted third party and to de-identify HI/HBM for analysis also needs additional manpower and funding, resulting in several ongoing studies suspending recruitment to complete de-identification. Under the new Human Tissue Framework, sharing of samples with collaborators requires researchers to perform tissue banking activities, which require another set of requirements to comply with. This will also affect collaborative research.

Understanding and interpreting the definitions and terminologies (Table 1) was daunting for researchers (eg, definition of “tissue bank” in the context of planning future use of tissue at the outset versus storing leftover tissue for future use).

With large collaborative grants, initiatives such as data sharing and data federation have been gaining momentum lately. Large-scale data sharing across disciplines and countries expand the value of research by enhancing scientific discoveries and facilitating validation of results that benefit individual as well as population health. However, data sharing comes with substantial challenges, such as developing a data sharing plan at the outset of the project, deciding on the type of agreement needed to get the data (eg, research collaboration, project agreement, material transfer agreement and data sharing agreement), and getting consensus from concerned institutions’ administrative and legal consultants on

data sharing. As execution takes a long time, data harmonisation and analysis are also delayed. This will in turn impact the research projects’ milestones and hinder researchers from completing the project within the stipulated grant period.

In conclusion

Biomedical and clinical research in Singapore is relatively new, and the research landscape and regulatory requirements are evolving rapidly. Researchers in Singapore may find it difficult to adopt to the swift legislative changes, and be overwhelmed by the required administrative paperwork and the need for additional resources for implementation of research. These changes lead to greater stress among researchers and divert their focus from effectively performing core research activities such as applying for grants, conducting the actual research, publishing papers, mentoring students and translating clinical research to practice.

HBRA has the potential to protect the rights, safety and welfare of subjects who donate or participate in research, and demonstrate Singapore’s commitment towards ethical and responsible biomedical research and handling of human tissue. Researchers who are part of big research teams, with dedicated administrative teams and funding support, will adapt to the changes in due course, but it would likely deter early-career researchers or smaller institutions that do not have adequate manpower from participating in research. As the extensive and complicated consent process often exceeds the capacity of participants to understand their entitlement, raising public awareness about informed consent would ensure that participants are making informed decisions and that their rights are protected. Ultimately, the public and society need to recognise the importance of clinical research in promoting health and improving treatment. ♦

Table 1. Selected terminologies and definitions within the HBRA^{1,4}

Intervention studies	Procedures that have any physical, mental or physiological effect on the body of the research participants (eg, venepuncture, X-ray)
Invasive studies	Procedures that are incisional; ie, cutting into the tissues of the body (eg, finger-prick blood test, skin-prick test)
Core elements	Critical elements that should be communicated to the research participants or tissue donors
Situational elements	Elements that should be communicated to the research participants or tissue donors if they are relevant to the research
Incidental findings	Findings that have potential health or reproductive importance to the research subject discovered during the course of conducting research but are unrelated to the purpose/objectives of the study
Greater public good	Epidemiological or population-wide research studies at the national or regional level with tangible benefits/outcomes applicable to the general population at large
Human tissue	Any human biological material obtained from the human body that consists of human cells (eg, whole blood)
Tissue bank	An individual or a body of persons, whether corporate or unincorporated, or any other organisation, that carries out or conducts any tissue banking activity
Legacy human biological material	Tissue that have been removed from a donor and rendered non-identifiable prior to the Human Tissue Framework Act coming into force (ie, 1 November 2019)
De-identification	Process of removing personal identifiers like identity documents, date of birth, contact number, etc, from the health information
Trusted third party	Person/entity entrusted by a researcher or research entity with the holding and safekeeping of individually identifiable information of research participants or tissue donors
Contravention	Studies without core and relevant situational elements of appropriate consent

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Charumathi is a clinician scientist and Deputy Head of Ocular Epidemiology at the Singapore Eye Research Institute and an associate professor with the Ophthalmology & Visual Sciences Academic Clinical Programme at Duke-NUS Medical School. Her current research focuses on the epidemiology of diabetic retinopathy, chronic kidney disease and risk prediction using traditional and machine learning models.



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To Cure Sometimes, to Treat Often, *but to Comfort, Always...*

Text and photos by Jonathan Loke

Jonathan is a third-year medical student currently studying in Trinity College Dublin. He enjoys hiking, exploring the outdoors and spending time with his friends and family. He has a passion for medical outreach and although he still has a long way to go, he hopes that these opportunities and interactions will help hone his interpersonal skills and help him become a more empathetic doctor.



As we sat in the van travelling on the undulating dirt track bound for the village (a three-hour ride into the mountainous regions of Phetchabun, Thailand), we were filled with trepidation and anticipation for what was to come. It was the last week of July and we – a team of 16 Singaporean students from medical schools based in Ireland and the UK, three doctors and a physiotherapist – set out to the small Thai village of Khek Noi with excitement and enthusiasm, not knowing what to expect.

The expedition was organised in conjunction with RADION International, a Singapore-based non-governmental organisation, to provide assistance to the Hmong community in Thailand. When we arrived at the massive compound spanning five football fields, we were met with a warm welcome by Eugene Wee, the founder of the organisation. The main goal of the trip was to understand the needs of this vulnerable and marginalised group, assist in the distribution of food rations

and clothing, and improve the quality of health in the community through health screening and mobile clinics. In the two weeks that we were there, we stayed on-site at RADION's headquarters located within the village, which oversees the vast ginger plantations and rice terraces that were carved into the mountain sides. This gave us the unique opportunity to watch the sun rise over the valley every morning, its golden rays shining through the morning dew and low-lying clouds, and enjoy the cool morning breeze.

Language and cultural lessons

We spent our first few days attending language and cultural lessons as the staff at RADION taught us basic Thai words and phrases that would come in useful. We learnt how to ask "where the pain was" and explain procedures such as "checking your blood pressure" and "taking your temperature", which came in especially helpful during the mobile clinics. As foreign guests, it was imperative that we



acted in a culturally sensitive manner, thus there was also an emphasis on assimilating ourselves into the community. The staff showed us how to “wai” – a traditional greeting in Thailand where someone more junior would bow their head with their palms pressed together as a sign of respect to someone more senior. They also explained that as the head is considered a sacred body part in Thai culture, we should avoid touching the head of someone more senior as it is considered very disrespectful and impolite.

RADION and the Hmong people

Besides learning basic social etiquette, Eugene also educated us on the plight of the Hmong people to give some context to our service. Due to the Hmong people's involvement in the Vietnam War against the Communist Guerrilla forces in Laos, and the US' subsequent defeat, they have since been persecuted and labelled as traitors by Laos. The multiple reports of indiscriminate violence, brutal raping and mutilation have forced them to escape certain death by living on the run as refugees.

We also learnt that “bridenapping”, an act where a group of males abduct a young girl and force her to marry one of the males, often against her will, is unfortunately widely practised among the Hmong people. There was a young lady who came to the mobile clinics presenting with swelling and unilateral facial paralysis. She explained that when she was 18 years old, she was bridenapped by some boys. When she rejected their “proposal”, they followed her home and shot her in the face with a homemade shotgun. Although the incident occurred five years ago and she had undergone facial reconstructive surgery, we could still feel the shrapnel of the shotgun shell embedded in her

mandible during examination. It was shocking to think that such practices were still ongoing and that females in the community still face such persecution and harassment in this day and age. This incident also affected the team very personally since she was around the same age as us and it was upsetting to see how different our lives were, based solely on where we were born and the social circumstances that we were brought up in.

Home visits

The team visited the higher priority villagers who lived in basic houses with mud floors and attap roofs, most of whom suffered from more debilitating illnesses and were living alone without any formal social support. During the visits, we interacted with the villagers as we listened to their stories of everyday life, asked them how they were coping and what help they needed.

There we met a cheerful 80-year-old Hmong-Laoitian lady who lived alone after she escaped to Thailand from the war. The explosions during the war had left her with irreparable hearing loss, so she could not understand a large part of the conversation. However, we tried our very best to explain through the translators where we were from and encouraged her not to lose hope. When she finally



understood, she broke down in tears as she said that she genuinely felt loved by us and that it was something she would never forget. To see such an elderly lady who had gone through war, trauma and hardship so touched by the kindness of strangers and profusely sobbing was truly heart-wrenching.

I will never forget that scene where we were all crammed into the small and dimly lit room, silently sniffing as we struggled to hold back our tears, and just enjoyed each other's quiet presence. It was painful when the time came to say goodbye and we were all touched when she held our hands to thank and bless us individually for coming to visit her and said that she truly appreciated this encounter regardless of how short it was.

Prior to the trip, we had prepared medicine and rations, thinking that these were what the locals needed the most, but we realised at the end of the day that what they wanted was a listening ear, someone to hear their story of struggle and courage, and their tenacity to persevere despite the very worst that life had thrown at them. Through all these inspiring stories, we learnt and gained more from them than they did from us...



Mobile clinics

With the help of the three doctors, physiotherapist and the medication obtained from RADION, we were able to set up a mobile clinic and a small pharmacy in a neighbouring village, where the closest government hospital was at least an hour away. Over the span of two days, we saw about 300 patients; we checked their basic vital signs and dispensed medication, vitamins and supplements under the guidance of the doctors. We were also privileged to have Hui Qi, a physiotherapist, on the trip with us as she taught the villagers several exercises that they could do on their own, since a large majority of them came with musculoskeletal problems due to working on the farm for years.

During examination, an elderly gentleman was flagged up after presenting with an oxygen saturation of 92% and distinctly swollen ankles – clear signs of congestive heart failure. Despite his symptoms, he sat silently and did not show any signs of distress; we promptly sent him to the nearest hospital nonetheless. Unfortunately, we found out with a heavy heart that he had passed away several days later in the hospital. The only comfort we had was that he spent the remainder of his days surrounded by his friends and family and that his loved ones could bid their final farewell.

Health screening and education for children

The team also conducted health screening at the local school, which focused on measuring the children's height and weight, checking their hearing and eyesight, and screening for colour blindness. This was done to flag up any early signs of malnutrition, which was relatively common as many of the

students were found to be underweight. Happening concurrently was a segment that we prepared to educate the students on pertinent social issues, such as signs of domestic and sexual abuse, and the prevalence and mitigation of dengue. There was also a segment on the dangers of drug abuse, as many children would be exposed to drugs at a young age due to the region's proximity to the Golden Triangle. The children were all very excited to meet us and listened attentively to the lessons taught. They were also eager to learn and naturally inquisitive – many of them particularly fascinated by the tuning forks and were obsessed with listening to their own heartbeats with the stethoscope.

Ration packing and distribution

Over the span of three days, our team packed 800 bags of rations that consisted of donated clothing, instant noodles, toothbrushes, toothpastes and soap bars. These items were either collected from donation drives or directly sponsored by organisations in Singapore. We also distributed winter clothing and jackets as the temperatures can fall drastically in the winter with the occasional cold snaps of temperatures falling below zero. Most of the villagers wore slippers and traditional Hmong outfits that consisted of either thin loose-fitting trousers or long hemp skirts adorned with colourful embroidery which did not provide much insulation for the winter, leaving many of them susceptible to the harsh climate and extreme weather, with serious risks of hypothermia and frostbite.

The 14 days that we spent in Phetchabun was an eye opener and it is hard to encapsulate all that we had seen, learnt and experienced. I am certain that the memories of sitting in the back of the lorry riding through winding dirt tracks to

witness some of the most heart-breaking scenes will stay with many of us for a long time to come. But besides this, we will always remember the honour and gravity of being able to partake in the lives (and the sufferings) of these villagers. It served as a striking reminder that we should never be too caught up in the hustle and bustle of our lives, or the affluence and privilege of our society, to remember those in our community who need a helping hand.

As a team, we are grateful to everyone who helped out and served alongside us with such willingness, kindness and open hearts. We thank Hui Qi, Dr Treye, Dr Lydia and Dr Yang Lin for their constant guidance, teaching and assistance in the mobile clinics and health screening, and the staff from RADION, who chose to abandon their lives of comfort to help these people. Through their humility and simple lives, in spite of the severe circumstances where injustice and helplessness were so palpable, we have been deeply moved by the Hmong people and inspired to serve as they do. The opportunity to help the locals and listen to their personal stories also served as a timely reminder to us as students in the field of medicine. It truly was a stark reminder that we should always have the best interests of the patient at heart. It is hoped that through these humble acts of service, empathy and compassion that we might "cure sometimes, treat often, but comfort, always..." ♦

Legend

1. The children bringing us through the plantations
2. The local children were intrigued by the sound of their heartbeat and how the stethoscope works
3. Distributing winter wear to the locals
4. Teaching the children some games that we used to play as kids
5. The full team with the RADION staff

5



UNDERSTANDING INDEMNITY AND HOW TO DEAL WITH DIFFICULT SITUATIONS



LEARN ABOUT THE DIFFERENT INDEMNITY SOLUTIONS AND FIND THE ONE THAT SUITS YOU AND YOUR PRACTICE!

07 MAR
2020
SATURDAY

1 pm to 5 pm
Holiday Inn Singapore Atrium

2 CME points
(subject to Singapore Medical Council's approval)

Take this opportunity to speak with all three indemnity providers and learn about the different products available. SMA's Indemnity Committee will also touch on how to deal with difficult situations.

- ▶ Understanding the Basics of Indemnity
- ▶ Product Sharing by Indemnity Partners
- ▶ What to Do When I Receive a Complaint?
- ▶ Handling Difficult Patients and/or Families



TAX OBLIGATIONS ON MEDICAL PRACTICE

28 MAR
2020
SATURDAY

1 pm to 5 pm
Holiday Inn Singapore Atrium

2 CME points
(subject to Singapore Medical Council's approval)

Tax season is upon us once again. Whether you love or hate it, you can't put off preparing and filing your tax return. Join us for an afternoon of insightful discussion with the Inland Revenue Authority of Singapore and RSM Singapore to help you navigate through this tax filing season.

- ▶ Tax Obligations
- ▶ Common Tax Errors
- ▶ Tax Planning
- ▶ Budget 2020



**Singapore
Medical
Association**

MPM seminars in 2020 not to be missed!

**Scan this QR code or
visit <http://bit.ly/2ZWG5qp> to register NOW**



SMA MEMBERS APPRECIATION NITE 2019

THANKS
A MILLION

Thank you to all who joined us on 19 December 2019 for the SMA Members' Appreciation Nite held at Golden Village Great World City. 2019 has been a memorable year for us in advocating for a better healthcare environment for doctors, medical students and patients, and we couldn't have done it without the help of our volunteers and Members.

We trust that you have enjoyed the long-awaited premiere screening of Star Wars: The Rise of Skywalker. We look forward to marching into the new decade with you, and hope that 2020 will be filled with success, happiness and good health.

To celebrate SMA's 60th anniversary, SMA donated all proceeds collected from this event to the SMA Charity Fund (SMACF), which supports needy medical students in their living expenses. To find out more about the SMACF, visit <https://bit.ly/AboutSMACF>. ♦





REGIONAL PRIMARY CARE DIALOGUE SESSIONS: PRIMARY CARE TRANSFORMATION

About 130 General Practitioners (GPs) participated in the Regional Primary Care Dialogue sessions held across four Saturdays in Oct and Nov 2019. These dialogue sessions were jointly organised by Agency of Integrated Care (AIC) and Ministry of Health (MOH), and hosted by Senior Minister of State (SMS) (Health) Dr Lam Pin Min.

At the Dialogue sessions, GPs were updated on the progress of MOH's primary care initiatives since the last GP Townhall held in 2016 and the instrumental role played by GPs in caring for our population. One such initiative was the launch of the Primary Care Network (PCN) Scheme which brings like-minded GP peers together, where they are provided resourcing and administrative support to provide ancillary services. Since the start of the PCN scheme in Jan 2018, 10 PCNs have been established comprising more than 450 GP clinics. Together, these clinics have managed more than 70,000 chronic patients with better coordination and ability to track their patients' outcomes.

Another new initiative that was shared with GPs at the Dialogue sessions was the enhancements to the Community Health Assist Scheme (CHAS) since November 2019, of which CHAS would be extended to all Singaporeans with chronic conditions covered under the Chronic Disease Management Programme. Subsidies for CHAS Blue and Orange cardholders would also be increased. These enhancements will enable more Singaporeans to benefit from more affordable care at CHAS GP clinics and bring us a step closer to achieving our vision to anchor care, including chronic disease management, in the community.

The Regional Primary Care Dialogue sessions comprised of a panel dialogue, where we covered themes on the future state of primary care and enhancing chronic disease management care with GPs. GPs exchanged their views on their vision for primary care, in particular, the need to do more in preventive health management with patients. In this regard, many were supportive of the upcoming initiatives such as the rollout of subsidies for vaccinations under the National Adult Immunisation Schedule (NAIS) / National Childhood Immunisation Schedule (NCIS) as well as for Childhood Developmental Screenings (CDS). They also shared challenges faced in anchoring patients with multiple chronic diseases in the community, due to healthcare costs in the private sector especially drugs as well as difficulties in sharing clinical information with public healthcare institutions.

MOH and AIC would like to take this opportunity to thank the GP partners for their invaluable contributions in our endeavour to enhance, transform and anchor care in primary care. We look forward to your support as we continue to work hand-in-hand to transform primary care together in 2020.



SMS Lam exchanging views with GP partners during a lunch discussion



Sharing of poll results submitted by GP partners in attendance



Panel members from MOH and CFPS



GP learning about Clinic Management System (CMS) at a partner booth

Stressed over recruitment and training?

Last chance to enjoy the e2i funding for clinic assistants employed from 27 September 2018 onwards!



DID YOU KNOW?

SMA has a web portal with a pool of prospective clinic assistants

You can post job vacancies via your membership portal

You could send your staff for training with grants of up to 90%*

Log in to your membership portal to post your clinic's vacancies and interested job seekers with unique log-in access can view and submit their applications to you! A list of potential job seekers will also be sent to you after you've indicated details of your clinic vacancy via the online portal.

**If you have recruited a clinic assistant (Singaporean/Singapore Permanent Resident) after 27 September 2018 and are sending him/her to our Introductory Skills Training, you could enjoy a funding grant from Employment and Employability Institute's (e2i). The funding grant covers up to 90% of the Introductory Skills Training Fees (U.P.: \$800 before GST; capped at \$720) and up to 70% of your newly hired clinic assistant's one-month gross salary (capped at \$1,750 per trainee).*

Find out more via our website at <http://bit.ly/2Mjm6N1> or have a chat with us at clinicassistant@sma.org.sg!

SMA Clinic Assistant Place and Train Programme

Four-day Introductory Skills Course
19 to 22 February 2020

Three-week on-the-job training
24 February to 14 March 2020



Organised by



SMA60
For Doctors and Patients
Years

Supported by



AFRICAN ADVENTURE



SOUTH AFRICA'S SAFARI AND CAPE TOWN

Text and photos by Dr Ganesh Kudva, Dr Luke Hong and Dr Lee Kok Wei

One of the first things that comes to mind for most when Africa is mentioned would be its wildlife. Lions, elephants and rhinoceros are perhaps some of the most well-known animals. While zoos around the world do house some of these beautiful creatures, nothing can beat the experience of seeing them in their natural habitat.

Our trip to South Africa ignited due to the desire to partake in the once-in-a-lifetime experience of visiting an African Safari. We started our journey with a direct flight from Singapore to Johannesburg, followed by a connecting flight which took us to a tiny airport in Hoedspruit near the Greater Kruger area. We stayed in two different Safari lodges, Kambaku Lodge and Kapama Lodge, during our time there. These lodges are within private game reserves and each day consisted of two game drives, one in the morning before the break of dawn and the other in the evening. Between drives, we were pampered with delicious food, time for relaxation and perhaps most importantly, an open bar.

As July was winter time in the southern hemisphere, the lighter foliage made it easier to see the animals. The lower temperatures also meant that the animals were out in the open more. Like the

animals, we were also able to escape the scorching heat of the African sun, with temperatures ranging from about nine degrees Celsius in the mornings and nights to 24 degrees Celsius in the afternoons.

During the morning drives, we would get to see the animals as they wind down from their busy night of hunting and feeding. At the same time, we get to witness the beautiful African sunrise. An exciting aspect of the evening drives is that we travelled in almost complete darkness and saw the animals using a specialised torchlight.

Each game drive was an adventure unto itself – you never know what to expect; from watching a pride of lions feast on a wildebeest to doing a detour to avoid a rhinoceros sitting in the middle of the road. The thrill of being in an open-air vehicle and seeing wild animals up close in their natural environment evokes an indescribable exhilaration. And while we did get to see the big five (lions, leopards, buffalos, elephants and rhinoceros), the wildlife is just one part of a delicate ecosystem that contributes to the overall grandeur of this beautiful country. During our bush walks, we got to learn about the flora of the ecosystem and some basics in animal tracking. It is really amazing what one

can learn about an animal just by looking at their footprints and their droppings!

One of the highlights of the trip (other than seeing the animals) was interacting with our rangers and trackers. These experienced professionals have spent the better part of their working lives learning how to track animals and studying their behaviours. They had a wealth of knowledge and were happy to answer all of our questions. Their tracking skills were equally impressive and they were able to lead us to the animals simply by following the tracks found on the dirt road.

An important aspect of the trip was learning about conservation. It is alarming how much poaching has affected the animal population. An average of three rhinoceros are killed by poachers each day. We visited a conservation reserve during one of the afternoons and got to learn a great deal about how these game reserves contribute to the conservation of Africa's magnificent wildlife. Rehabilitating animals injured from poaching and eventually reintroducing them back into the wild is their top priority.

We had gone to the safari to see animals, but what we got in return was so much more!

Into the city

Our safari adventure came to a close, but we moved on to the next leg of our trip... Cape Town!

If ever there were a city that in one snapshot could encapsulate the beauty of the world while highlighting the problems that mankind faces, it would have to be Cape Town. This is a city where shanty-towns sit side by side with vineyards and lavish country estates, where one could be sampling wine and cheese in a beautiful 17th century Cape Dutch villa with alpacas grazing on nearby pastures, while the South African army conducts operations against violent gangs and drug syndicates just a few kilometres away in a ramshackle slum. The contrast is jarring and unnerving.

Cape Town is often described as a world unto itself. With its urban lattices interwoven into the undulating geography, constantly framed by Table

Mountain and the South Atlantic Ocean, it is home to unique cultures (eg, the Cape Malays and the Cape Dutch), unique flora and fauna (eg, the fynbos) and cuisines that are otherwise unheard of outside of the city. It is often also referred to as "Africa-lite", a place which is geographically within the Africa, but shields a traveller from the problems that unfortunately plague the continent.

Our five-day trip took us from the scenic Victoria & Alfred waterfront to the colourful houses of Bo-Kaap, the bastion of the Cape Malays, and many other evocative sights within the city. Further afield, we visited the wind-lashed Cape of Good Hope, the top of Table Mountain, which was mysteriously shrouded by clouds at the time of our visit, and the vineyards of Paarl as well as Stellenbosch, where world-class wines are produced in the shadows of majestic cliffs. At every turn, we found stunning sights, smiling faces and a smorgasbord of amazing food.

But a glance at the papers, or a peer into the distance from our car windows, often revealed an altogether differing, parallel reality. During our visit, we read in the papers of rampant gang violence in the Cape Flats, of a HIV epidemic and of rising violence against migrants from Zimbabwe and Nigeria. South Africa does a wonderful job of shielding its tourists from the chaos of its shanty-towns, but it does make one wonder if the separation of Apartheid has truly ended, or if it has merely moved from a distinction based on race, to a distinction based on socio-economic lines instead. ♦

Legend

1. Cape buffalo, rhinoceros and elephant
2. On top of Table Mountain looking down at Cape Town
3. Up close and personal with a family of lions enjoying their wildebeest breakfast
4. Cape of Good Hope

Dr Ganesh is a doctor at the Institute of Mental Health who is passionate about mental health and public policy. In his free time, he avidly follows his favourite team, Liverpool FC, and travels widely. Each country he visits makes him realise how alike we all are to each other and how much more united mankind should be.

Dr Lee is a psychiatry associate consultant who relishes his time hanging out with his fabulous friends, sipping cocktails, going for long never-ending jogs (while dragging some friends along), and doing (hopefully) constructive work. He fantasises about having a puppy, being able to do art as and when he pleases, and likes foxes, unicorns and similarly cute animals.



Dr Hong is a GP who is passionate about tennis, travel, film, television, music and musical theatre. When he is not indulging in any of these, he is either spending time with his friends and family or working to earn enough to indulge in his passions.



SMA EVENTS

Feb-Apr
2020**02 FEB**
Sunday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

12 FEB
Wednesday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

07 MAR
Saturday ★ 2Understanding Indemnity
and How To Deal With
Difficult Situations

📍 Holiday Inn Singapore
Atrium
 👤 Doctors and
Healthcare Professionals
 ☎ Alif (6540 9197)
 ✉ cme@sma.org.sg

08 MAR
Sunday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

16 MAR
Monday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

18 MAR
Wednesday ★ 2

Mastering Your Risk

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

19 MAR
Thursday ★ 2Achieving Safer and
Reliable Practice

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

26 MAR
Thursday ★ 2Mastering Difficult
Interactions with Patients

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

28 MAR
Saturday ★ 2Tax Obligations on
Medical Practice

📍 Holiday Inn Singapore
Atrium
 👤 Medical Practitioners,
Aspiring and Current
Practice Owners, Clinic
Managers and Staff
 ☎ Alif (6540 9197)
 ✉ cme@sma.org.sg

02 APR
Thursday ★ 2Building Resilience and
Avoiding Burnout

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

04 APR
Saturday ★ 2Mastering
Adverse Outcomes

📍 Novotel Singapore on
Stevens
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

04 APR
Saturday ★ 2Persons with
Intellectual Disabilities

📍 TBC
 👤 GPs, Paediatricians,
Psychiatrists and
Neurologists
 ☎ Jasmine Soo (6540 9196)
 ✉ cme@sma.org.sg

05 APR
Sunday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

08 APR
Wednesday ★ 2

Mastering Your Risk

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

15 APR
Wednesday ★ 2Mastering Difficult
Interactions with Patients

📍 Sheraton Towers
 👤 Family Medicine and All
Specialties
 ☎ Terry/Athirah (6223 1264)
 ✉ mpsworkshops@sma.org.sg

21 APR
Tuesday ★ 4

BCLS + AED

📍 SMA Office
 👤 Doctors and Staff
 ☎ Alif (6540 9197)
 ✉ cpr@sma.org.sg

19-22 FEB
Thursday-Sunday

Clinic Assistant Introductory Course (Basic)

📍 PSS Conference Room
 👤 Clinic Assistants
 ☎ Alif (6540 9197)
 ✉ clinicassistant@sma.org.sg

LEGEND

- ★ CME Points
- 📍 Venue
- 👤 Who should attend
- ☎ Contact
- ✉ Email

- 🟡 CME Activities
- 🟢 Non-CME Activities

• SALE/RENTAL/TAKEOVER •

Clinic/Rooms for rent at Mount Elizabeth Novena Hospital. Fully equipped and staffed. Immediate occupancy. Choice of sessional and long term lease. Suitable for all specialties. Please call 8668 6818 or email serviced.clinic@gmail.com.

Gleneagles Medical Centre clinic for rent. 400 sqft. Waiting area, reception counter and consultation room. Immediate. SMS 9680 2200.

Royal Square @ Novena clinic/rooms available for rent. Brand new, tastefully renovated, auspicious unit number, high 18th floor. Please contact Regina 6235 0660.

Clinic for rent. 1119 sq ft. Upper Bukit Timah. Good frontage next to Beauty World MRT Exit A. One operating theatre with two recovering beds. Suitable for aesthetic, plastic, cardiology or share specialists' clinic. Call Mr Lim 9666 3343.

Fully furnished clinic room with procedure room for rent at Mount Elizabeth Novena Hospital. Suitable for all specialties. Please call 8318 8264.

Buy/sell clinics/premises: Takeovers (1) D10 Bukit Timah, 1300 sqft, established (2) D02 Chinatown, mall practice (3) D20 Ang Mo Kio, heartland practice, with shop (4) D20 Bishan practice, with shop (5) D20 Bishan practice, good revenue (6) D14 Sims Place clinic space, with/without practice (7) D03 Bukit Merah, heartland (8) D08, Health screening practice, with shop (9) D09, O&G, Orchard, high turnover. Clinic spaces (a) D01 Raffles Place, fitted, 300 sqft (b) D07 Parklane, 345 sqft, fitted (c) D22, Biz Park, 1000 sqft. Yein 9671 9602.

• POSITION AVAILABLE/PARTNERSHIP •

Family Clinic in Clementi looking for an assistant doctor or long term locum. Interested, please contact Dr Teo at Hp: 9369 4486



醫院管理局
HOSPITAL
AUTHORITY

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The Hospital Authority (HA) invites both Non-specialist and Specialist Doctors who are eligible for **full registration with the Medical Council of Hong Kong (MCHK)** to consider joining the HA to pursue specialist training and/or serving the community of Hong Kong.

*For **Resident Trainee** positions:*

(Ref: HO2001001)

Please visit <http://www.ha.org.hk> (choose English language, click Careers → Medical → Resident Trainees [Various Clusters]) for details. Application should be submitted online via the above HA website on or before **13 February 2020 (Hong Kong Time)**.

*For **Specialist** positions:*

Recruitment of specialist doctors is conducted throughout the year (no application deadline). Specialist doctors who would like to obtain further information are welcome to send email to hohrcrt@ha.org.hk.

Enquiries

Please contact Ms M L Fong, Hospital Authority Head Office at (852) 2300 6950 or send email to hohrcrt@ha.org.hk.

THE UNIVERSITY OF HONG KONG
Faculty of Law



MASTER OF LAWS in MEDICAL ETHICS AND LAW Information Session in Singapore

The Master of Laws in Medical Ethics and Law (LLM(MEL)) is inviting applications for its September 2020 intake.

The curriculum of the LLM(MEL) programme is designed as an integrated interdisciplinary one that addresses concerns of growing importance in the health professions, law and business, and it spans important topics such as consent and confidentiality, research best practice, ethics at the end of life and nuances of medical negligence. This programme is offered by the Faculty of Law of the University of Hong Kong and is open to candidates with a degree in law, or in medicine. Suitable candidates with relevant professional experience holding a degree in a discipline other than law or medicine will also be considered. The curriculum offers lawyers, social scientists, policymakers and healthcare professionals a guide to the fundamental ethical, legal and social issues influencing the delivery of healthcare.

Modes of Study

- ♥ 1 - year Full-time
- ♥ 2 - year Part-time

Core Modules

- ♥ Introduction to Medical Law or Introduction to Medical Practice
- ♥ Bioethics Foundations
- ♥ The Physician-Patient Relationship
- ♥ The Beginning and End of Life
- ♥ The Regulation of Biomedical Research
- ♥ Capstone Experience

Learn more about LLM(MEL)

<https://llm.law.hku.hk/mel/>



Information Session in Singapore

Date: 31 January 2020 (Fri)
Time, Venue & Registration: Please refer to the website above

Contact Us

(+852) 3917 1845

Room 921, 9/F, Cheng Yu Tung Tower,
The University of Hong Kong, Pokfulam Road,
Hong Kong

cmel@hku.hk

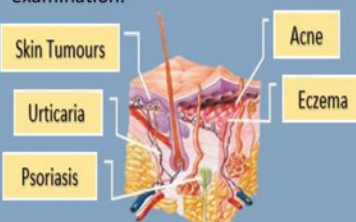
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April 2020 – March 2021

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This face-to-face course includes comprehensive reading materials, home assignments, six sit-in clinical sessions and a OSCE exit examination.



WHO SHOULD ATTEND?

- Polyclinic Doctors
- General Practitioners
- Family Medicine Residents
- Medical Officers
- Other Speciality Doctors

Course Details:

Dates : 1st Saturday of the month
Time : 2.00pm – 5.00pm
Venue: Academia, 20 College Road
Singapore 169857
Fees : \$4000 (Inc GST)
Registration fees (Non-refundable):
\$50 (Inc GST)
Early Bird Rate (02 Jan – Mid Feb) :
\$3800

To register, scan QR Code or
<http://tiny.cc/dermatology>



For enquiries:

jo.quek@duke-nus.edu.sg



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20
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- 👤 Plastic Surgeon

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Interested candidates are invited to submit their applications with resume to:

MEDICAL AFFAIRS DEPARTMENT

6th Floor, Tower A, Sunway Medical Centre

E doctorsrecruitment@sunway.com.my
koojw@sunway.com.my
deliciacy@sunway.com.my

T +603 7491 1367/1439/1028

Monday-Friday 8.30am – 5.30pm
Saturday 8.30am – 1.00pm

No.5, Jalan Lagoon Selatan, Bandar Sunway, 47500 Selangor Darul Ehsan, Malaysia.
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Model	Recommended List Price	Trade in model Prices are inclusive of GST
3M™ Littmann® Classic II™ Infant/Pediatric Stethoscope	\$138	\$110
3M™ Littmann® Classic II™ Infant/Pediatric Stethoscope (Special Edition)	\$159	\$128
3M™ Littmann® Classic III™ Stethoscope	\$142	\$114
3M™ Littmann® Classic III™ Stethoscope (Special Edition)	\$158	\$127
3M™ Littmann® Classic III™ Stethoscope (Mirror/Champagne Edition)	\$164	\$131
3M™ Littmann® Cardiology IV™ Stethoscope	\$295	\$236
3M™ Littmann® Cardiology IV™ Stethoscope (Special Edition)	\$326	\$261
3M™ Littmann® Cardiology IV™ Stethoscope (Mirror/Champagne Edition)	\$355	\$284
3M™ Littmann® Master Cardiology™ Stethoscope	\$326	\$261
3M™ Littmann® Master Cardiology™ Stethoscope (Special Edition)	\$355	\$284

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Trade-ins to 3M™ Littmann® Cardiology IV™ get a free Stethoscope Case as well.

For any enquiries, please contact SMA eMarket at 6223 1264 or email emarket@sma.org.sg (Attn: Ashley or Kie Chuan)



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WHY JOIN SMA MEMBERSHIP?

SINCE 1959, WE'VE BEEN ADVOCATING FOR MEDICAL PRACTITIONERS AND DOCTORS IN TRAINING ON MATTERS CLOSE TO OUR HEARTS WITH THE GOAL OF ENHANCING THE LOCAL HEALTHCARE LANDSCAPE – **FOR DOCTORS, FOR PATIENTS.**



PRIVILEGES AT A GLANCE

01

SMA MEMBERSHIP PORTAL
REGISTER FOR CME EVENTS AND COURSES, AND COMPLETE MONTHLY SMJ CME QUIZZES



02

PRACTICE RESOURCES
PLACE ORDERS FOR YOUR MEDICAL SUPPLIES WHENEVER, WHEREVER AT SMAEMARKET.SG



03

EMPLOYMENT OPPORTUNITIES
SEARCH FOR PERMANENT OR LOCUM POSITIONS AND HIRE SMA-TRAINED CLINIC ASSISTANTS



SMA MEMBERSHIP IS BASED ON AN AUTO-RENEWAL BASIS AND ANNUAL SUBSCRIPTION FEES ARE DUE AT THE START OF EACH CALENDAR YEAR. ANY REQUESTS REGARDING YOUR MEMBERSHIP STATUS SHOULD BE SENT IN WRITING VIA EMAIL TO MEMBERSHIP@SMA.ORG.SG, SUBJECT TO APPROVAL FROM THE SMA COUNCIL.

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SMA60
For Doctors For Patients
Years

Director, Medical Services

The successful candidate will spearhead the Medical Services and Allied Health Services teams and cultivate a culture of high quality care in delivering holistic, quality and safe dialysis treatment to patients for optimal clinical outcomes and population care management.

- Provides strategic oversight to the teams and collaborates with both internal and external partners to roll out a holistic care model in support of the Foundation's push for integrated service delivery and partnerships with external stakeholders
- Leads and drives quality improvement and patient safety initiatives/programmes in accordance with the Foundation's directives and/or external regulatory requirements, in addition to implementing patient care management programmes and providing oversight to the infection control practices/standards
- Participates actively in educational and academic activities like conference presentation and scientific publication
- Provides training/mentorship to the clinical teams on Patient Management and advises on medical matters to other departments

Requirements:

- Degree in Medicine from a recognised University
- Membership of the Royal Colleges of Physicians (MRCP) or American Board Certified qualifications or equivalent qualification registerable with SMC
- Certificate of Specialist Accreditation in Renal Medicine
- At least 10 years of clinical nephrology practice (clinical management of ESRD patients) including 3 years of supervisory experience

Nephrologist

The successful candidate will be part of the Medical Services team responsible for delivering holistic, quality and safe dialysis treatment to patients for optimal clinical outcomes and population care management.

- Promotes multidisciplinary collaboration in delivering a holistic renal care model and standard to improve patient experience and outcome
- Responsible for patient care management, participates in developing patient care policies and standards as well as ensures compliance at the dialysis centres
- Participates actively in quality improvement programmes and educational/academic activities including conference presentation and scientific publication
- Collaborates with quality assurance team to improve clinical quality and patient safety in the dialysis centres, conducts regular clinical audits and shares outcome indicators for continuous improvement
- Screens new applicants' suitability for satellite dialysis programme, participates in multidisciplinary round and mortality review as well as provides training on in-house clinical programmes

Requirements:

- Degree in Medicine from a recognised University
- Membership of the Royal Colleges of Physicians (MRCP) or American Board Certified qualifications or equivalent qualification registerable with SMC
- Certificate of Specialist Accreditation in Renal Medicine
- At least 5 years of clinical nephrology practice (clinical management of ESRD patients)

If you have a passion for our mission and possess a strong desire to make a positive difference, we would like to hear from you.

Submit your application to cynthia.chua@nkfs.org by 29 February 2020

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