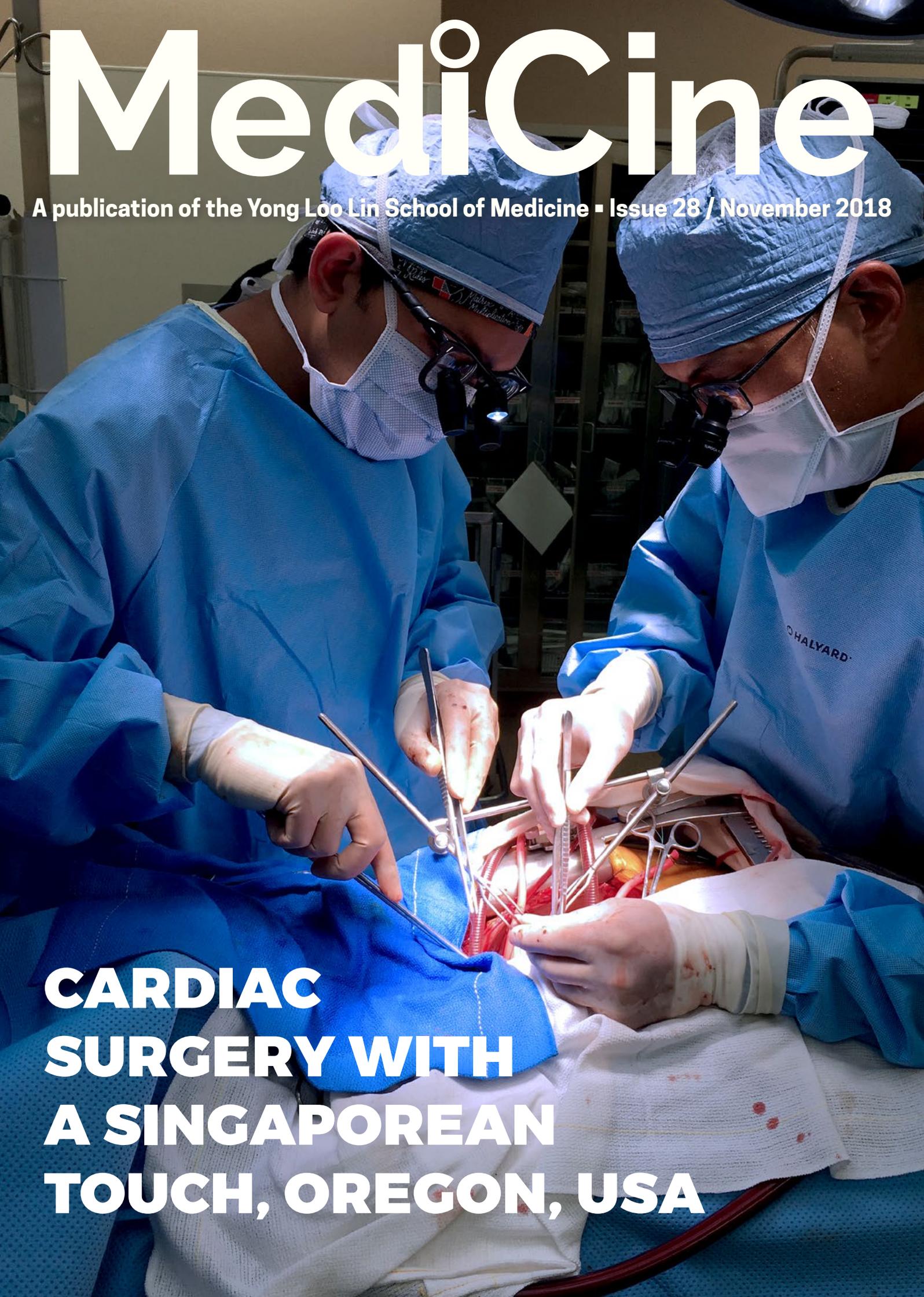


Medicine

A publication of the Yong Loo Lin School of Medicine • Issue 28 / November 2018



**CARDIAC
SURGERY WITH
A SINGAPOREAN
TOUCH, OREGON, USA**

DEAN'S MESSAGE



Associate Professor Malcolm Mahadevan (middle) and Dr Chen Zhixiong with students from the Medical Society Committee and IFG Captains.

Dear Reader,

Inspiring Health for All

Let me start by congratulating Team Medicine for winning the 2018 Inter-Faculty Games and bringing home the Tan Eng Chye Challenge Trophy! Well-done all sportsmen and women!

We are all part of cycles in life. I begin with a tribute to our teachers here at the School. The 2,950 teachers include academic clinicians, scientists as well as clinicians from public and private healthcare institutions. Our teachers unstintingly give of their time to teach and mentor tomorrow's doctors, nurses and scientists. Our students catch the inspiration from their teachers, and seniors, and will in turn pass on the values, wisdom and experience to those who come after.

Service and giving is yet another virtuous cycle. We are a medical school with a tradition of public service that goes back to our heritage and founding more than a century ago. It is a legacy that our students continue to build on, through a number of community projects. Two especially deserve mention because they are iconic examples of our service ethos.

In 2004, a group of NUS Medicine students saw the need to educate the community about health matters and started a basic community health screening service for Singaporeans. The Public Health Service is now in its 15th year. It aims to promote the health of the local community using both primary and secondary prevention strategies,

and also spreading awareness of the need for everyone to care for their own health. In 2008, another group of medical students started the Neighbourhood Health Service for low income-earning residents living in rental HDB apartments in Taman Jurong. This year the 12th edition of NHS has reached out to residents in Kampong Glam and Queenstown (Leng Kee) in September and October. They were screened for all chronic illnesses as well as oral, visual and hearing health. Our students are also following up on residents in districts screened in previous years, including those residing in Eunos Crescent and Kampong Glam.

Both of these annual community service programmes came into being because our students saw a need and took action to address the need. Long may our vision of inspiring health for all continue into the future!

I too have completed a full circle and this is my last message as Dean of NUS Medicine. It has been a great privilege and honour to have served as Dean of the School and to have worked alongside all faculty and staff for the past six years. More than ever I am inspired by all the talent in the university and in our students. I thank all of you for your support. I am confident that under the able guidance of the new Dean, Professor Chong Yap Seng, the School will reach new heights. Please give your full support to the new leadership team. The future is in good hands and brighter than ever!

With best wishes for a Happy Christmas and a Healthy 2019!

Khay Guan

CONTENTS

DOSSIER

04 Medical Conference Offers Perspectives, Insights

06 Neighbourhood Health Service 2018

10 Teaching the Young to Care for the Old

SCIENCE OF LIFE

11 Cross-Causeway Collaboration raises cure rate for childhood leukemia

13 Key to Artery Health Lies in Lyve-1 Macrophage

IN VIVO

14 Healing the Bone

ETHICALLY SPEAKING

17 What Matters for a Good Life Matters for Good Care

INSIGHTS

20 A Doctor Never Stops Learning

22 Families – Love ‘Em or Hate ‘Em, We Can’t Live Without ‘Em

INSIGHTS

26 Running Highs and Lows: Going Beyond The Treatment of Symptoms

ALL IN THE FAMILY

29 Community Care Education at NUS Medicine

ALUMNI VOICES

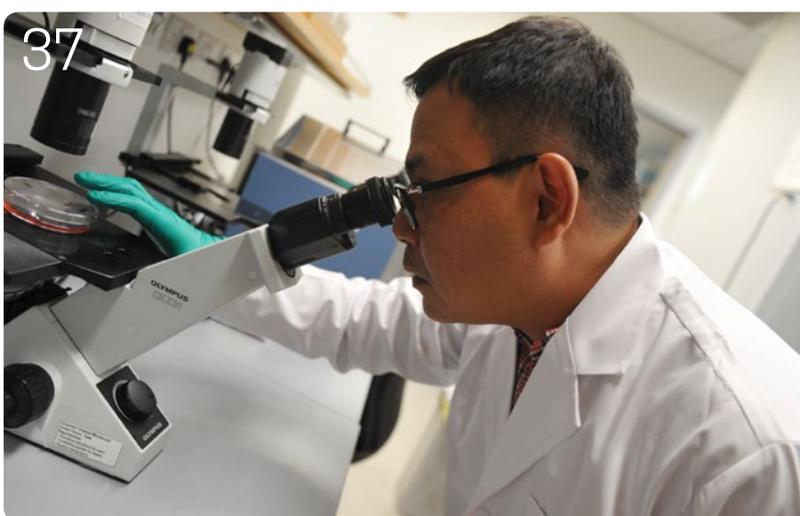
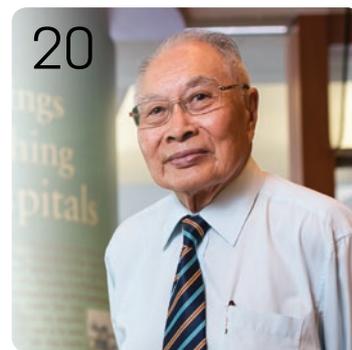
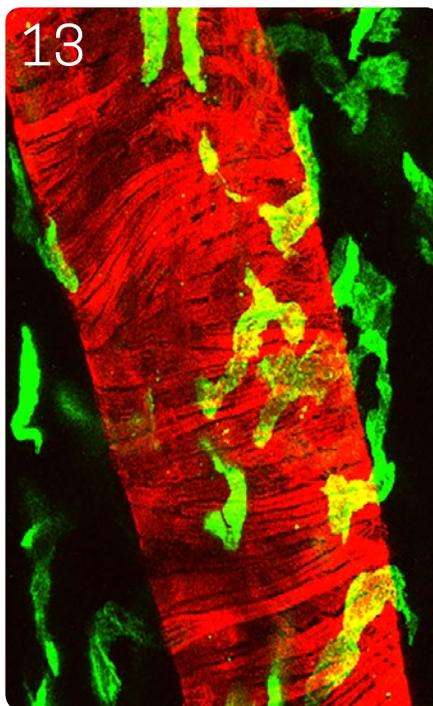
34 He Pulled a Metal Shard From a Farmer’s Heart

PEOPLE OF NUS MEDICINE

37 Succumbing to Biotechnology’s Adrenaline Rush

SCHEDULER

40 November 2018 – January 2019



MediCine

is published quarterly by the
Communications Office of the
NUS Yong Loo Lin School of Medicine.

Please address comments to:

The Editor, MediCine
Yong Loo Lin School of Medicine, Dean’s Office
1E Kent Ridge Road, NUHS Tower Block, Level 11, Singapore 119228
Tel: 6772 3737 | Fax: 6778 5743
Email: medmedia@nus.edu.sg | Website: nusmedicine.nus.edu.sg



Delegates working on a student collaborative project pose for a group photo.

MEDICAL CONFERENCE OFFERS PERSPECTIVES, INSIGHTS

By Ho Ding Heng, Phase II Medicine Student

I was humbled to be given the opportunity to attend the Asian Medical Schools Conference 2018 hosted by Hanoi University in Vietnam. It was attended by ASEAN delegates from countries such as Thailand, Indonesia, Myanmar, and Vietnam. During the conference, ASEAN delegates presented their research projects and discussed pertinent issues regard their countries' healthcare systems. The research projects presented by the ASEAN delegates were enriching and insightful, as they provided perspectives of the socioeconomic and healthcare landscapes of different ASEAN countries. The interactions with delegates were meaningful and rewarding as well. I gained a better understanding of other ASEAN medical schools, such as their academic curriculum, examinations for bachelor degree and university entry application process.

Moreover, the Vietnamese students were excellent hosts, hospitable and amicable. They would bring us to

four places around Hanoi, help us to buy breakfast and always ensured that we are safe. Most importantly, the friendships forged with the different ASEAN delegates were invaluable and rewarding, transcending language barriers and geographical boundaries.

Retrospectively, this Summit has made me realise how big the world really is, and we are a small part of the global family. It is a useful perspective with which to appreciate global health and the challenges as well as opportunities that come with it.



Singapore, Thailand and Vietnam Representatives forming a partnership after the focus group discussion session.

DOSSIER



NUS Student Representatives in front of the Alexandre Yersin Statue, the first headmaster of Hanoi Medical University.



NUS Representatives at the 7th ASEAN Medical Deans' Summit Opening Ceremony.



NEIGHBOURHOOD HEALTH SERVICE 2018

Bringing together the nation's key players in healthcare delivery

By Benjamin Tan Kye Jyn and Koh Ying Ying
Co-Directors, Neighbourhood Health Service 2018
Phase II Medicine Students

Singapore's pioneering student-led health screening programme for residents of rental HDB apartments has expanded significantly this year, the 12th since the programme began in 2007.

In September and October 2018, the Neighbourhood Health Service (NHS) brought its health screening and follow-up programme to residents in Kampong Glam

and Queenstown (Leng Kee). Student volunteers reached out to more than 8000 households and conducted health screening for 863 residents in the comfort of their own homes.

The flagship community service project of the NUS Yong Loo Lin School of Medicine is the only student-led school project that has nationwide reach and scale, involving all three Regional Health Systems (NUHS, SingHealth, NHC) in serving close to 6,000 residents in 10 different districts since 2007.

Singapore's first Integrated Community Health Screening

For the first time this year, NHS established a six-way partnership involving the Ministry of Health (MOH), respective Regional Health Systems, Health Promotion Board (HPB), Agency for Integrated Care (AIC), Singapore Eye Research Institute (SERI), National Dental Centre Singapore (NDCS) and Singapore Cancer Society. This replaced the conventional practice of holding separate

DOSSIER



Phase I Medicine student with a resident during the door-to-door screening.

screenings for different modalities, saving residents a significant amount of time.

Residents were assessed via multi-level tests in five distinct categories through a “one-stop shop” screening covering:

- Chronic diseases (diabetes mellitus, hyperlipidaemia, hypertension, obesity)
- Functional modalities (vision, oral health, hearing)
- Fall prevention (screening and education)
- Cancer (colorectal, cervical, breast)
- Mental health (dementia, depression)
- Social work (financial, social, psychological)

Notably, basic and advanced screenings for vision and oral health were conducted on the same day at NHS, with the strong support of long-time partners SERI and NDCS. Usually, elderly screened under HPB’s Project Silver Screen functional screenings would have to make separate trips post-screening to community-based mobile clinics for advanced eye and dental checks. For elderly residents of rental apartments, many of whom have no family to accompany them on medical appointments, removing this additional barrier would likely encourage follow-up.

Bringing the key healthcare institutions on board means that the screenings this year were holistic, community-

based health screenings, aligned with nationwide screening efforts.

“It is also the first of its kind in the country”, said Associate Professor Gerald Koh of the Saw Swee Hock School of Public Health. He and a team of doctors from the National University Health System (NUHS), SingHealth and National Healthcare Group (NHG) have been advising and mentoring NHS.

Officers from the MOH Ageing Planning Office who attended NHS’ Kampong Glam screening expressed interest in modelling this approach to integrate multi-level chronic disease and functional screening efforts in other districts nationwide. Officers from the MOH Health Regulation Group and MOH Office for Healthcare Transformation also studied NHS’ unique approach at Kampong Glam and Queenstown (Leng Kee).

Door-to-door screenings are cost-effective

In addition to door-to-door publicity, NHS also pioneered the unique approach of door-to-door screenings and follow-up many years ago. Healthcare students equipped with the relevant equipment would visit residents, in particular those who are immobile, to conduct health screenings in their homes.



A resident gets her vision checked.

In line with its long-term goal of evolving into a replicable, scalable health service model, NHS sought to evaluate the cost-effectiveness of its labour-intensive, active approach. To do so, NHS worked with a team of NUS Business students, mentored by Associate Professor Albert Teo (Director, Chua Tian Poh Community Leadership Centre).

The team conducted a social return on investment (SROI) analysis in 2015 and found that for every \$1.00 invested in NHS over a five-year cycle, \$2.29 in social returns were generated yearly on average. This shows, perhaps counter-intuitively, that the door-to-door approach is in fact cost-effective. Today, door-to-door healthcare is being implemented across the island.

Follow-up care, driven by research

Every year, NHS also engages in population health research under the Saw Swee Hock School of Public Health. In the

past, NHS found that residents living in HDB rental blocks were four times less likely than the average Singaporean to go for regular health check-ups. Additionally, only 11 percent of rental block residents preferred to approach Western-trained doctors, while 30 per cent preferred alternative medicine. Another 53 per cent indicated a preference for “self-reliance”.

These findings spurred NHS to expand its follow-up programme. And so, close to 300 residents with abnormal results for chronic disease screenings (i.e. 30 percent of residents who were screened) were selected for follow-up last year. The aim was not to replace primary care physicians or to prescribe medicines, but to motivate these residents to follow-up with their family doctors on their screening results.

Trained by the NUHS Department of Family Medicine in motivational interview techniques frequently used



NHS student representatives visit a resident.

to counsel patients, NHS student committee members engaged residents in conversation via phone calls and house visits in more complex cases. This was done at regular three-monthly intervals, for up to a year after the residents' screening. At these sessions, the residents were encouraged to adopt positive health-seeking behaviour.

The changing healthcare landscape

This year, a multitude of new programmes were launched to help seniors age-in-place. These include AIC's Care Close to Home pilot, which assists elderly rental block residents with activities of daily living and management of chronic conditions, as well as SingHealth's Community Nurse Posts and NHG's Community Health Posts, which aim to rehabilitate frail elderly and reduce the rate of hospital admissions.

In September 2018, NHS brought these partners together to integrate our approaches and minimise overlap. While discussions are still ongoing, the goal of synergy is in sight and residents screened in 2018 can expect to have a single

main organisation in charge of their follow-up.

The team is proud to represent NUS Medicine in bringing together the key national players, and is sincerely grateful for our mentors' excellent guidance and the school's unwavering support. Along with A/Prof Koh, mentors who NHS worked closely with this year also include A/Prof Tay Sook Muay (Associate Dean, NUS Medicine, SGH Campus), Dr Sue-Anne Toh (Clinical Director, NUHS RHS Planning & Development), Dr Ian Wee (Senior Resident, Internal Medicine, SGH), Dr Chiong Yee Keow (Senior Resident, Paediatrics, NUH) and many more who have guided NHS in one way or another.

The team would also like to thank all residents, volunteers, partners and sponsors for their unwavering support over the past year. The next NHS committee will continue to improve and adapt amidst the changing healthcare landscape, driven by our common passion to make a positive difference in the community!



Trigen Day celebration for Cycle 7

TEACHING THE YOUNG TO CARE FOR THE OLD

Tri-generational Homecare @ North West (Trigen for short) is a NUS Medicine community project that brings together healthcare students and secondary students to create an environment beneficial to health recovery for elderly people. Chester Tan (Phase II) and Xiong Zhong Hui (Phase III) tell us more.

In the 7th year since our project's beginning in 2012, we've gone through eight cycles of volunteers and beneficiaries. Since our pilot cycle, we've worked with 422 team leaders, 492 secondary school students, and have reached out to 135 patients.

Ong Yan Ling, Trigen Project Director, says, "We're looking to empowering youths to be responsible citizens of a compassionate community." Our goals have always been to inspire holistic care for the geriatric population through bringing a first-hand understanding of community care to university students studying in the healthcare sector, as well as secondary school students. We build our model around long-term interaction with the geriatric population and believe that we can only truly begin to understand one another over time."

Through multiple training sessions, team leaders and secondary school students have been equipped with basic medical knowledge and skills, as well as the

communication tools that would aid them in interacting with the elderly. This sets the foundation for future home visits where they will utilise these skills to better understand them.

Our commitment to building an inter-professional healthcare project can be seen in the diversity of people from different faculties in our committee and volunteers, with students from NUS Medicine, Nursing, Pharmacy, Social Work, NTU Medicine, SIT Physiotherapy and Occupational Therapy.

The upcoming Cycle Nine will mark the beginning of an expansion in Trigen. We are moving from a six-month cycle to a one-year cycle, to better facilitate a deep-rooted connection between teams and the elderly. We are also expanding our patient profile to include SMART patients. This cycle also marks an increased exploration of technology, through the pilot launch of an app that allows students to keep track of their interactions with their elderly, as well as access online resources at the touch of their fingers.

Through these years, we've been fortunate to come under the mentorship of Vice-Dean (Education), Associate Professor Lau Tang Ching, who has guided us from strength to strength. Our strong partnership with North West CDC and the Yishun Health Ageing-In-Place programme has enabled us to build a strong brand and core support network, allowing us to continue creating opportunities for students to come under our wing and grow with us.



CROSS-CAUSEWAY COLLABORATION RAISES CURE RATE FOR CHILDHOOD LEUKEMIA

By Dr Khor Ing Wei,
Dean's Office

“Cooperation is the thorough conviction
that nobody can get there unless
everybody gets there

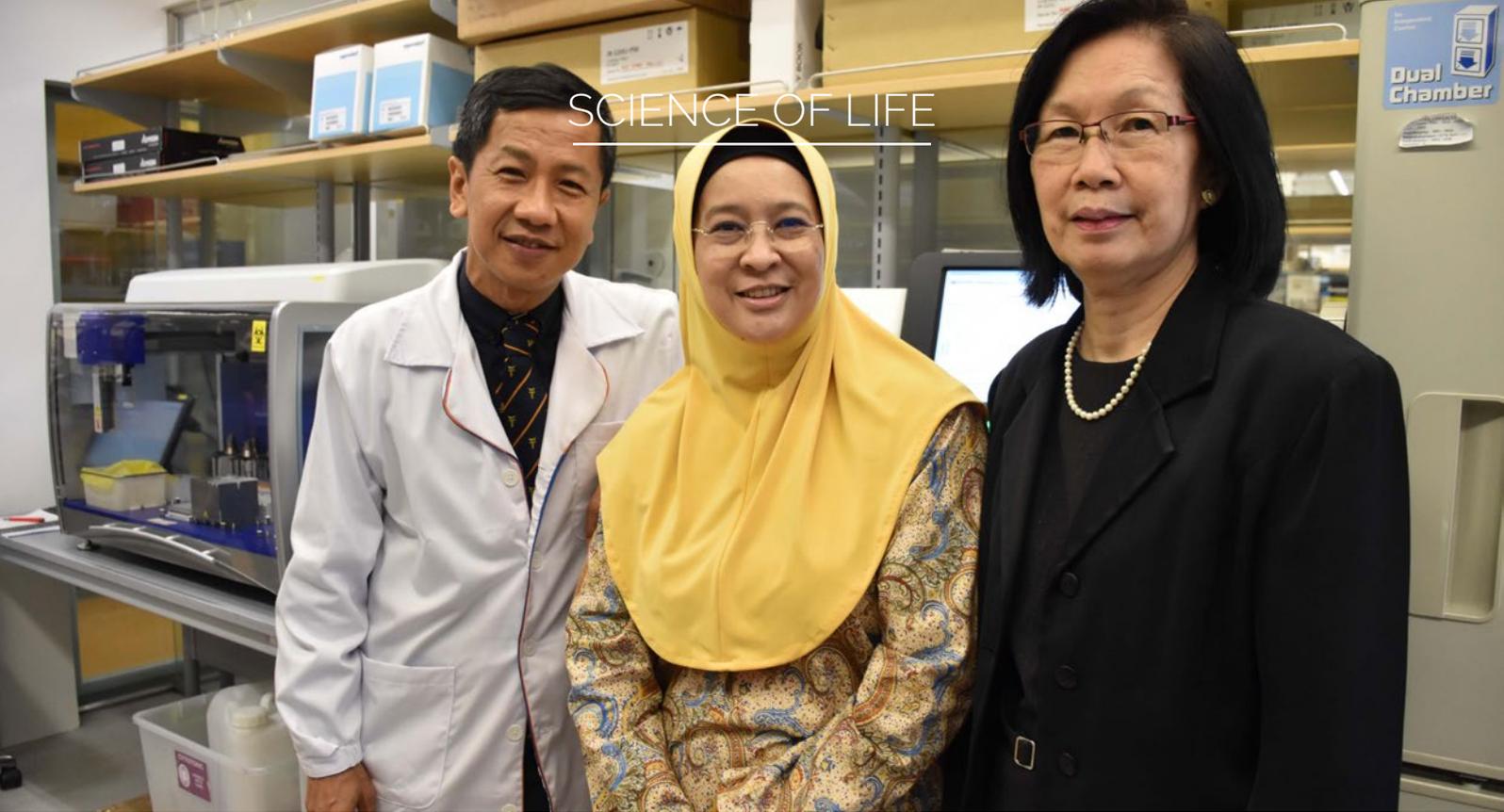
- Virginia Burden

On the face of it, childhood acute lymphoblastic leukaemia (ALL) appears to have been licked, with cure rates of between 80 and 90 per cent. However, the challenge remains to improve outcomes for the small proportion of patients who do not respond well to standard treatment for ALL and have very poor outcomes.

In 2002, four hospitals in Singapore and Malaysia pooled their paediatric patients with ALL, totaling more than

500, with the goal of solving this problem. This group of patients formed the basis of the seminal Malaysia-Singapore ALL 2003 (MS2003) study, which was a game changer in the treatment of ALL. Published in the *Journal of Clinical Oncology* in 2012, the study showed that ALL patients could be classified into different groups by their risk of severity, and the intensity of their treatment tuned according to the risk level. The patients were classified using clinical characteristics, genetic mutations, and a marker called minimal residual disease (MRD), which is a measure of the proportion of cancer cells still remaining after treatment. This more accurate approach led to just as high a cure rate as for standard treatment, but with fewer side effects overall.

Another important finding from the 2003 study was that patients with a change (a deletion) in a gene called *IKZF1* had a worse prognosis than those lacking the deletion. The



Associate Professor Allen Yeoh with his collaborators - Professor Hany Ariffin from the University of Malaya Medical Centre, Kuala Lumpur, and Associate Professor Tan Ah Moy from KK Women's and Children's Hospital.

IKZF1 gene produces the IKAROS protein, which is needed for B cells (the immune cells in our body that produce antibodies) to mature. However, the 2003 study did not consider *IKZF1* deletion status when classifying patients for treatment.

Following up on this highly successful study, the team started a new study in 2009 (MS2010) that also evaluated children from one to 18 years old with newly diagnosed ALL. This time round, the researchers specifically enrolled children with B-ALL, a type of ALL that affects mainly B cells.

The MS2010 study, published in the 10 September 2018 issue of the *Journal of Clinical Oncology*, stratified the children with B-ALL similar to the earlier study, and also took into consideration whether they had the *IKZF1* gene deletion. If a patient had this gene deletion, they were classified as "high risk," even if they lacked conventional risk factors.

After classifying the patients, the researchers treated the high-risk group with more intensive therapy than the standard-risk and intermediate-risk groups. This mainly involved giving two blocks of an intensive three-drug regimen (fludarabine, cytarabine and daunorubicin) in the second phase of treatment, at around one month and two months after start of treatment. In addition, for two years, the researchers also gave a drug called imatinib (Gleevec®) to patients in the high-risk group who had the *BCR-ABL1* gene abnormality, which is common in ALL. The team then followed the patients in the study for nine years until January 2017 to evaluate how well they did.

To assess whether the new treatment strategy was more effective than the one used in 2003 (which did not take

into account the *IKZF1* gene deletion), the research team looked at two main measures in B-ALL patients with the *IKZF1* deletion and compared them between the MS2010 and MS2003 studies. Compared with MS2003, the new treatment approach in MS2010 **reduced the five-year risk of relapse** (risk of cancer recurring within five years after a period of remission) by half (from 30 to 14 per cent) **and improved the five-year overall survival by one third** (from 70 to 92 per cent) in this patient group. Patients who had the *IKZF1* deletion but lacked the *BCR-ABL1* abnormality saw their five-year risk of relapse cut down by half. Although the effect was even more dramatic in patients who had the *IKZF1* deletion and were also *BCR-ABL1* positive, this could have been due to the imatinib treatment.

This study, which is the first to use the *IKZF1* gene deletion to determine treatment in children with ALL, was possible only because of the strong collaboration between researchers in Singapore and Malaysia. By each contributing their unique strengths and patient bases, they were able to discover a more effective treatment approach for an especially severe subset of high-risk ALL patients.

As Associate Professor Allen Yeoh of the Department of Paediatrics, NUS Medicine and the first author of both papers, sees it, "It is wonderful that working very closely together between NUS and University of Malaya and four hospitals, we can pick and answer critical treatment questions for the children of the world. Putting together our scientific and clinical capabilities between Singapore and Malaysia, the Ma-Spore group continues to give our children with leukaemia the best chance of cure."



Associate Professor Veronique Angeli and her research team.

KEY TO ARTERY HEALTH LIES IN LYVE-1 MACROPHAGE

By Dr Khor Ing Wei,
Dean's Office

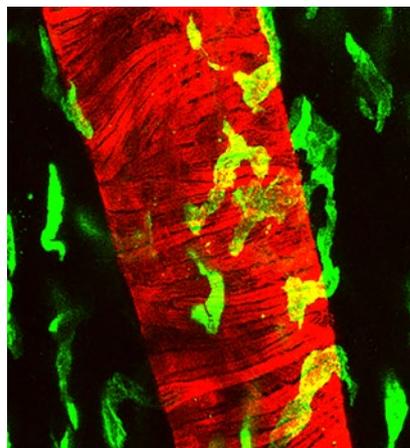
Our arteries are the major highways by which blood, oxygen, nutrients and cells are carried throughout the body to keep our tissues functioning normally. Unfortunately, much like actual highways, arteries can get worn down or damaged, which can have serious consequences. One of the main types of damage is arterial stiffness, in which the walls of the arteries harden or stiffen. Since these blood vessels are no longer flexible, it can lead to high blood pressure and an increased risk of cardiovascular diseases such as atherosclerosis and aneurysm. However, up till now, the causes of arterial stiffness were still largely unknown.

Enter Associate Professor Veronique Angeli and colleagues at NUS Medicine. Publishing in the August issue of the prestigious journal *Immunity*, the researchers described how they identified a population of macrophages (a type of immune cell) that coat the outer walls of healthy arteries and express a protein called LYVE-1. The team showed that LYVE-1 binds to a substance called hyaluronan on the surface of smooth muscle cells in the artery walls. This binding causes an enzyme called matrix metalloproteinase-9 (MMP-9) to degrade collagen in the smooth muscle cells, preventing the artery walls from becoming stiff. When these LYVE-1 macrophages were

absent, the arteries accumulated collagen and lost their elasticity, becoming stiff and inflexible.

Macrophages are well known for their role in the immune response, where they are a part of the body's first lines of defense. This study reveals another, previously unknown role for these helpful cells, this one in maintaining the proper structure and function of arteries.

The work has clinical implications for both ageing and cardiovascular diseases that are currently investigated by the team in collaboration with clinicians from NUHS and the University of Otago in New Zealand. Indeed, arterial stiffness is a hallmark of ageing arteries and generally precedes cardiovascular diseases such as atherosclerosis and aneurysm. Specifically, the team is addressing whether alterations in the number and function of LYVE-1 macrophages contribute to cardiovascular diseases. This knowledge should help in the development of new treatments for arterial diseases and biomarkers of artery health.



Macrophages coat the outer surface of a blood vessel to maintain their structure and function.
Green: macrophage;
Red: blood vessel



HEALING THE BONE

Dr Goh Wei Leong, Director and Founder of Healthserve, was the Guest of Honour at this year's White Coat Ceremony (WCC) for first year students on 16 August 2018. This is what he told them:

It gives me great pleasure to be with you here today, on this memorable day which many of you have no doubt worked very hard for. I would like to congratulate you first, and welcome you to your first year of medical school. Well done, and welcome.

Since this day marks only the beginning of your lengthy training and education, I have been asked to give a speech that will motivate and encourage you. I hope this will encourage you today; but more importantly, down the road when you really need the encouragement, I hope that you will remember and hold this saying to heart: *I am, because we are.*

Margaret Mead, a renowned American cultural anthropologist, was once asked what she considered to be the first evidence of civilisation. Her answer: a human thigh bone with a healed fracture found in an archaeological site 15,000 years old.

Why not tools for hunting or religious artefacts or primitive forms of communal self-governance?

Mead pointed out that for a person to survive a broken femur, the individual had to have been cared for long enough for that bone to heal. Others must have provided shelter, protection, food and drink over an extended period of time for this kind of healing to be possible.

She suggested that the first indication of human civilisation is care over time for one who is broken and in need, evidenced through a fractured thigh bone that was healed.

This story is told by Ira Byock, an authority on palliative medicine, in his book *The Best Care Possible: A Physician's Quest to Transform Care Through the End of Life* (Avery, 2012). In many ways the book can be understood as an extended commentary on the famous aphorism in medicine:

"To cure sometimes, to relieve often, to comfort always."

I am a GP in the Jalan Kukoh neighbourhood at Outram. I have been practising there for 30 years, in my white coat –proudly and happily because I have always wanted to be a GP growing up.

I want to challenge you guys today, as much as we love to don our white coats as a symbol of the profession, to sometimes take them off in order to see people for who they are, and to learn from them in humility. I was



White Coat Ceremony 2018 with Dr Goh Wei Leong as Guest of Honour (5th from right, back row).

challenged to take my coat off one day by my Filipino colleagues when we visited a patient, who I will refer to as Madam Tan.

Mdm Tan was an old lady; she didn't live in a shoe, and she didn't have many children. She had only one son, and she had just lost him in a tragic accident. She was alone, and great was her grief and distress. One day, a representative from the Agency for Integrated Care contacted me and told me Mdm Tan had requested my presence. So I brought two of my Filipino staff with me, Karl and Jana, and we paid her a home visit.

This was my perspective. After the visit, I was sufficiently impressed and even feeling proud of our local system. I felt that Mdm Tan was being well-supported in her time of need by the social worker and her family doctor, yours truly, and that she had been given clean and comfortable shelter at very little cost in a HDB rental flat.

My staff however had a completely different perspective, and it shocked me initially.

"Yes," they said, "Mdm Tan's flat is very nice compared to what we have in the Philippines. Even the financially able do not have housing as nice as this. But in our country, our village would have adopted this lady as our own grandmother, and she would live with us and we would care for her like our own."

In other words, Mdm Tan wouldn't or shouldn't have needed professional intervention.

I learnt something very important that day from my Filipino colleagues. I learnt the importance of considering a patient beyond my professional perspective, so to speak, beyond their symptoms and diagnosis and health even.

I had donned a white coat (symbolic of the lab, what is clinical and sterile, official and efficient), but missed the deeper lesson of true healing and medicine. I boasted about the efficiency of Singapore medicine. But really, who is poorer? The Singaporean or the Filipino?

Filipinos, with their community and communal approach, would have adopted Mdm Tan as their grandmother. Community works within a covenantal relationship, not a contractual one. Covenant is about a vow, a mutual agreement, like marriage. Not a contract bound by time and ROI.

What if we, as medical professionals, move from contract to covenant? What if we see every patient as someone in our community? The migrant worker, the person with a disability, the local poor, the domestic helper and low-wage worker?

What if our culture shifts from individualism, contractual relationships and self-interest to neighbourliness and covenantal relationships? What if we practice *Ubuntu*?

Ubuntu is a beautiful and old South African concept. The modern dictionary defines *ubuntu* as "a quality that includes the essential human virtues; compassion and humanity", but the South Africans translate it as "I am; because of you."



Dr Goh Wei Leong — we should remove our white coats sometimes.

In other words, I am who I am because of who you are. People are not people without other people.

In 2006, Nelson Mandela was asked in an interview to explain the concept of *Ubuntu*. Mandela replied, "In the old days when we were young, a traveller through a country would stop at a village, and he didn't have to ask for food or water; once he stops, the people give him food, entertain him. That is one aspect of *Ubuntu*, but it will have various aspects. *Ubuntu* does not mean that people should not address themselves. The question therefore is, are you going to do so in order to enable the community around you, and enable it to improve? These are important things in life. And if you can do that, you have done something very important."

Another famous politician, former US President and 2007 TED Prize winner Bill Clinton, has also embraced the philosophy of *Ubuntu* in his philanthropic work at the Clinton Foundation. He says, "So *Ubuntu* — for us it means that the world is too small, our wisdom too limited, our time here too short, to waste any more of it in winning fleeting victories at other people's expense. We have to now find a way to triumph together." Also applying *Ubuntu* to politics, he told Labour delegates at a UK conference in 2006 that society and collaboration is important because of *Ubuntu*. "If we were the most beautiful, the most intelligent, the most wealthy, the most powerful person — and then found all of a sudden that we were alone on the planet, it wouldn't amount to a hill of beans," Clinton said.

When we understand *Ubuntu*, we realise from the inside that our own well-being is deeply tied to the well-being of others around us. It is a beautiful picture of connection, community and mutual caring for all.

When we understand *Ubuntu*, we will always look after the weakest in our community. And the femur would heal. We would make every effort to help those at the fringes. This is an idea of redemption too — we don't let anyone fall through the cracks.

Here is an idea: starting with this new class of 350 first-year students. You will be together for the next five years and probably longer, as professionals in white coats. In your cohort; why not look after the weakest in your clinical groups and classes? That person struggling to understand physiology and anatomy. Or your classmate who has to work F&B banquets part-time in order to pay for his medical school fees. It is no longer about stepping on each other to get onto the Dean's list, or scoring 100 marks while your friends fail.

Have you heard the saying that we are only as strong as the weakest link in our community? I challenge you to help take care of the weakest in your faculty. And then the weakest in the wards, and the weakest of our patients. The weakest in our society and then globally. All this will in turn shape us because of *Ubuntu*.

Remember: To do this and to celebrate *Ubuntu*, we may have to remove our white coats sometimes or allow them to be dirtied in our service of humanity and one another. So congratulations on getting your white coat today. But don't become too attached to it, and to always remember the true purpose behind healing and medicine. And don't forget this: *Ubuntu: I am; because you are.*



WHAT MATTERS FOR A GOOD LIFE MATTERS FOR GOOD CARE

By Dr Vikki Entwistle, Professor of Bioethics and Director, Centre for Biomedical Ethics

In a recent report on *Good care at home for older people in Singapore*,¹ colleagues and collaborators of the Centre for Biomedical Ethics encourage us to consider how, in an ageing society, we should “acknowledge, advance and balance the interests of older adults and of caregivers” (p1). They open the first main section of their report by stating that “A good life and good care are intertwined”, and as they discuss the ethical dimensions of caregiving relationships and the social systems that support them, they emphasise the importance of a good life for both those older people who need care and for the various people (including family members, domestic workers, neighbours and community volunteers) who care for them (p5).

The concept of a good life can be very useful for ethical reasoning, not only about the care that we need and should give each other within our families and communities but also about the care provided by professional health services. After all, what makes healthcare good if it does not improve people’s lives?

Professional discourse about healthcare, however, sometimes seems to reflect and foster somewhat narrow thinking, both about what matters for good lives and about the ways that health services can contribute to good lives. This can tend to limit ethical sensitivity and reasoning about healthcare provision. Perhaps particularly in less urgent and less acute cases, it can constrain the practical pursuit of good care in its most meaningful senses.

In this issue, I briefly consider how we might usefully strengthen efforts to improve healthcare by reinvigorating ideas about the relationships between good care and good lives. More specifically I suggest taking a broad view of the purpose of healthcare as being to enable people to live (and die) well.

Disease-centred, system-centred or person-centred healthcare?

An important set of concerns about the quality and ethics of healthcare relate to patients’ (and sometimes family members’) experiences of not being appropriately treated as persons in healthcare settings. Extreme examples involve people feeling they have been treated as ‘lumps of meat’ or ‘things on a conveyor belt’. More typically, people give examples of disrespectful or uncaring interactions, of not being listened to or taken seriously, of being unfairly judged and of not being able to understand or have a say. Both unduly ‘disease-centred’ and unduly ‘system-centred’ approaches to health care have been identified as tending to contribute to these poor experiences.



The critique of disease-centred healthcare acknowledges that much progress in medicine has been made via the scientific study of disease processes at the levels of physiological systems, organs, tissues, cells and genes, and via the development of sophisticated technologies, including pharmaceuticals, to tackle these. It points out, however, that the potential benefits of the resulting diagnostic and treatment interventions can be significantly undermined if healthcare providers forget that there is more to a good human life than disease control and if they do not refocus clearly enough on what matters to each particular patient as a person.

The critique of system-centred healthcare acknowledges that access to safer and more effective healthcare has been made possible for many people by concerted efforts to study healthcare needs and the effects of potential interventions at the level of populations, and to use the knowledge generated to inform the development of healthcare systems. It points out, however, that the positive potential of this work can be significantly limited if insufficient attention is paid to the particularities of often diverse people within populations or to the ways people feel as they are processed through these systems – to how their experiences of healthcare systems contribute to their sense of how well their lives are going.

The critiques of disease-centred and system-centred healthcare have both underpinned the development of the idea that good healthcare should (among other things) be person-centred. Such care has been defined in various ways, but can be understood generally to promote the idea that good healthcare should treat people ‘as persons’ – including, for example by recognising them as worthy of respect and care, and by appreciating that their own perspectives on their experiences and lives matter.

Quality of life or living (and dying) well?

Talk about how healthcare impacts on people’s ‘quality of life’ suggests a (re)connection is being made between ideas about good care and ideas about good lives. In

many healthcare contexts, however, the phrase ‘quality of life’ is associated with a rather narrow set of ideas and standardised assessments of, for example of people’s levels of pain, fatigue and functional ability in domains such as mobility, feeding and self-washing. These can be important indicators of areas in which people might need care, but they can also fall quite a long way short of capturing the range of capabilities and experiences that matter in people’s lives. Some key concerns of person-centred care are absent from much quality of life discourse, and some typical quality of life assessments are insufficient as guides to good care provision or measures of healthcare success.

In recent work with colleagues from the UK, I have argued that healthcare for people with long-term health conditions (e.g. asthma, diabetes, Parkinson’s) should be broadly oriented to enable them to live (and die) well with those conditions.² When contrasted with narrower views of the purpose of health care, and even with a focus on quality of life when that is understood in a static and standardised way, this broader view has a number of advantages. I will mention just a few interlinked points here. First, a focus on enabling people to live (and die) well can bring all aspects of what matters for good lives into the frame of consideration for healthcare decision-making and practice. It can keep disease control in the picture, but it also keeps it in perspective (see figure). It can also accommodate the ambitions associated with person-centred care because, for example, feeling respected and cared for are important aspects of living well. Second, a focus on enabling people to live (and die) well should help to foster the kind of person-centred healthcare practice that many people regard as important features of good care, because consideration of what would enable someone to live (and die) well requires respectful and caring consideration of that particular person’s perspective – we judge our living (and dying) in large part on our own terms. Third, if necessary, this broad view of purpose also encourages us to recognise any ways in which healthcare undermines people’s scope to live (and die) well as harmful – or at least somehow problematic.

ETHICALLY SPEAKING

View of Purpose:		
	Manage conditions well (disease control and risk management)	Enable people to live (and die) well
Implication for:		
Considerations of success	Emphasis is on condition control (clinical perspective prevails)	Emphasis is on living (and dying) well (person's own perspective matters)
Patient's position and role in health care	Relatively obscured as a person (focus is on condition); may be at risk of becoming seen as a means to clinical ends.	Central focus, central actor: the patient is the person doing the living (and dying).
Attention to the patient's emotional wellbeing, sense of identity, feelings of respect etc.?	These are not obviously relevant, except perhaps instrumentally if they affect disease control.	These can be key aspects of living (and dying) well, so it is important to attend to them. If the way health care is provided impacts these negatively, something is wrong.

A broader view of the purpose of health care: keeping disease control and health promotion efforts in perspective

A promising educational initiative

In another recent Centre for Biomedical Ethics publication, *Looking through the silver mirror*,³ a group of NUS students show how they developed what we could describe as an appreciation of the broader and more personally specific aspects of living (and dying) well. The students, who are working towards careers in medicine, nursing, pharmacy, psychology and social work, each spent time with an older Singaporean from outside their immediate families, listened to their life story and their experiences with health problems and health and social care, and then reflected on their conversations. In a series of essays, they introduce us to the rich array of characters they met. They convey with deep respect something of what the person they spoke with valued in their lives – both when they were younger and now in their older age. The students acknowledge, often with mature humility, what they learned as they got to know the person as such, including about the ways in which health and social care could impact both positively and negatively on what mattered to them in their lives.

In *Looking through the silver mirror*, the students show some highly promising sensitivity and creativity as they consider how, in the future, they might integrate

appropriate biomedically-based professional considerations (for example about an older person's physical condition) with attention to each person's own particular values and aspirations (for example to maintain some independence through work, or to make other people happy). Their thoughtfulness bodes well for those of us who might need their professional help in coming years. I hope that for the rest of their professional education and in their future work environments these students (and others) will be supported to maintain and share their appreciation that the quality of healthcare should be considered at least in part in terms of the extent to which it enables people to live (and die) well.

References

1. Chin J, Dunn M, Berlinger N, Gusmano M (2017). Good care at home for older people in Singapore. Singapore: Centre for Biomedical Ethics. ISBN: 978-981-11-7509-1
2. Entwistle VA, Cribb A, Owens J. Why health and social care support for people with long-term conditions should be oriented towards enabling them to live well. *Health Care Analysis*, 2018, 26(1): 48-65.
3. Wong HZG (Ed.) (2018). *Looking through the silver mirror*. Singapore: Centre for Biomedical Ethics. ISBN: 978-981-11-77734-7

Professor Chew Chin Hin, Emeritus Consultant, Tan Tock Seng Hospital and Honorary Postgraduate Advisor & Adj Professor of Medicine, Division of Graduate Medical Studies, Yong Loo Lin School of Medicine

A doctor never stops learning

MEDICAL education is one of my passions. When I became a doctor in the 1950s, education was very well structured in Singapore's medical school. However, for specialist training we were dependent on medical institutions overseas, especially in the United Kingdom. Doctors had to go there to get higher qualifications. Some went for a year, two years or even three years; that meant a loss of manpower and finance to Singapore. It took Dr Toh Chin Chye to change all that.

Many doctors, especially those of us at the Academy of Medicine (set up in 1957), had been asking for our own specialist qualification system: Something that let doctors work and train in Singapore and only go abroad for hands-on experience. Of course, we knew we needed to have very stringent qualification methods... even better than those in the UK and Australasia.

The Academy of Medicine and the School of Postgraduate Medical Studies spearheaded this move, petitioning the Ministry of Health (MOH) and the Singapore University many times. Nothing much came out of this except for the formation of a committee on postgraduate medical studies in the medical faculty in the mid-1960s.

The situation shifted in October 1967. Dr Toh, who was Deputy Prime Minister at the time, gave a speech where he criticised the medical school and the medical community for not developing postgraduate education and thereby producing specialists. Professor K. Shanmugaratnam, who was the master of the Academy then, immediately called me and said: "Chin Hin, we must respond to Toh Chin Chye."

We convened an emergency council meeting and drafted a reply to Dr Toh. Soon after that he called us for a meeting at City Hall... I think it was held at the surrender chambers where Lord Mountbatten took the surrender from the Japanese. It was a very cordial meeting. Dr Toh can be a very tough person, but he was very kind to us. He said, "Shanmu, you be the chairman of this committee to spearhead the formal postgraduate medical education programme."

So that is how the school of postgraduate medical studies came to be shared equally by the medical faculty and the Academy of Medicine. And that is how our first master of medicine degree, the MMed, came about in 1970-71.





Master of the Academy... Prof Chew (second from right) was part of the welcome party that greeted Health Minister Toh Chin Chye (far right) when he arrived at the 10th Singapore-Malaysia Congress of Medicine in 1975.

One of things we insisted on was that the standards of examination be very stringent. We had to appoint external examiners to ensure that some of the elements would be similar to, if not even better than, the qualifying process in the UK and Australasia. We started with MMed (Internal Medicine) and MMed (Surgery), then MMed (Obstetrics & Gynaecology) and MMed (Paediatrics). We had paediatrics because of Professor Wong Hock Boon.

Of course, we had our own local examiners to support the external examiners; some were presidents of their respective colleges from the UK and Australasia. We asked the external examiners to give us unbiased reports on our candidates and our examination standards. Invariably, the reports said that both were of very high standards, even higher than in their own countries. And they were so impressed; they even suggested having reciprocal examinations!

The first joint examination we agreed on was the Fellowship of the Royal College of Surgeons together with MMed; that was in the late 1980s. That was a milestone. Our professional standards had been accepted and our trainees could take the examinations here.

I was then on the board of the School of Postgraduate

Medical Studies. In 1991, when I retired from MOH as Deputy Director of Medical Services, I retained my role on the board as deputy director, a post I inherited from Professor Seah Cheng Siang in 1989.

Teaching the doctors has changed a lot since my time, thanks to computerisation and advances in imaging and other technology. Many doctors of today tend to depend on them more. When I started as a young doctor, we always insisted on good bedside teaching and not being dependent on too much investigation. Our old professors like Gordon Ransome could diagnose diseases without much aid. Simple laboratory investigations were crucial to our management, like taking blood samples for malaria parasites. But I think it is very important for young students to have the fundamentals of learning and teaching; to be taught how to be meticulous with patient histories and clinical examination, which can give you quite a lot of knowledge to get the right diagnosis.

Medical training is a lifelong process. A doctor never stops learning and never stops teaching the next generation.

“Caring for our People: 50 years of healthcare in Singapore”; reprinted with the kind permission of MOH Holdings Pte Ltd on behalf of the Ministry of Health.



Families – Love ‘Em or Hate ‘Em, We Can’t Live Without ‘Em

By Dr Noreen Chan,
Head & Senior Consultant,
Division of Palliative Care,
National University Cancer Institute,
Singapore (NCIS)

I had not planned to watch the film *Crazy Rich Asians* but when a free ticket presented itself, curiosity got the better of me.

Hype and hysteria aside, this is actually a very entertaining movie. I found myself enjoying it much more than I thought I would, largely because I could identify with much of it. Not just the familiar locations, but also the premise that our families contribute much of who we are, but not all of who we can be.

Many aspects of multi-generational family life were played out on the big screen – culture and identity clashes, factions and rivalries, obligations versus passions, love and sacrifice – while running through the individual stories, was the question of the family ecosystem and each person’s place in it. In a pivotal scene, Michelle Yeoh’s character Eleanor Young, explains the basis of her opposition to her son’s love interest

Rachel, using the Hokkien term ‘kaki lang’: “It means ‘our kind of people’... You are not ‘our people’”. I will not spoil it for those who have not seen the film: suffice to say that you will not think of mahjong in the same way again.

What has this got to do with Palliative care? Quite a lot as it happens. Read on and find out.

What is a family?

Most of us are born and live in the context of a family, yet we never stop to think about what a family is. A common definition refers to a social unit consisting of parents and children, but that is only one form of family. Over time, our understanding of the family unit has evolved and grown in diversity. Within the fields of sociology and anthropology, it is recognised that family members do not have to be related by blood or marriage and can consist of individuals who have bonded and identified one another as family. This is known as fictive or chosen kin.

The family is portrayed frequently in art, literature and popular culture, and it is in film and TV that some of the biggest changes in family culture and structures have been portrayed, mirroring changes in society. If one compares



the shows of 50 years ago and now, between the era of *The Brady Bunch* and *The Waltons*, and today's *Transparent* and *The Modern Family*, the differences are obvious.

In Singapore, the past fifty years have seen dramatic sociodemographic shifts. Families have become smaller, there are fewer multi-generational families under one roof, but more households made up of singles or two persons, as well as what is known as “blended” families – where parents are divorcees in a new relationship, with children from their previous marriages and sometimes children from the current marriage, sometimes referred to as “your, my and our children”.

Families play important roles in society e.g. nurture the young, protect the vulnerable, transmit culture and practices, provide identity, care and love. Or they should. Families are not always sources of strength and solidarity: they can also be the root of conflict, violence and abuse. In the 1990's Dr David Kissane, a psychiatrist practising in Australia, had studied and written about dysfunctional families. He attempted to categorise them e.g. fractured, argumentative and help-rejecting, or sullen, depressed, but help-accepting, so as to better refine family therapy approaches.

Fortunately, families are, by and large, mutually supportive, resilient and adaptable to change, but crises and life stressors can put serious strain on family relationships. Serious illness, dying and death are some of the major stressors in our lives, so it is no surprise that palliative care workers frequently encounter families in turmoil.

Families and palliative care

The World Health Organization definition begins thus: “Palliative care is an approach that improves the quality of life

of patients and their families facing the problem associated with life-threatening illness...” so it goes without saying that the family must be included in the circle of care. Every patient and family is unique. Each brings their own culture and dynamic, and individual motivations, beliefs and needs to the mix. There is no “one-size-fits-all” approach.

Although a serious illness like cancer may strike an individual, the whole family can be affected. This is especially so if that individual is the breadwinner. As the illness traces its trajectory, family members will assume different roles like caregiver, spokesperson, interpreter, decision-maker etc.. Children and adolescents sometimes take on more adult roles such as caring for younger siblings, or a sick parent, becoming “parentified” in the process.

Family involvement in patient care and especially decision making, is common across all societies, but probably more explicit in Asian cultures, to the extent that family members can learn about a patient's diagnosis before the patient does. My observation is that patients do want their families involved in the exchange of information and in decision making, although the nature of that involvement will of course vary from family to family.

I have also observed that patients often make decisions with their families in mind. Even as they approach the close of their lives, their main concern is for those they will leave behind. On several occasions patients with advanced incurable cancer have confided to me that if it was up to themselves alone, they would be ready to stop chemotherapy. “But my family says I cannot give up...”. That, in and of itself, is not a bad thing. We frequently prioritise our loved ones' needs above our own, sacrifice our wants so that those we love can be happy, or at least be less



“But it is important to ask: at the end of life, when time is limited and the outcome inevitable, how much is enough, and whose needs should prevail ?

unhappy. If a patient has made a considered decision about treatment to preserve family harmony, or to console family members, that is still his/her decision. But it is important to ask: at the end of life, when time is limited and the outcome inevitable, how much is enough, and whose needs should prevail?

In the case of older patients who may be incapacitated, their adult children may need to take on decision-making responsibilities that can be very stressful if the patient concerned had not made an Advance Care Plan or made known his or her preferences. I have seen siblings at odds over their frail parent's care, each one wanting "the best" but having different ideas about what "the best" means.

The impact of illness and death on the family

It has been said that people approach the end of their lives as an extension of how they have lived. And so it is with their families. Old habits die hard, and the way we

have learnt to relate to one another, is hard to unlearn. The "baggage" of the past has a way of being dredged up during stressful times, and when old wounds reopen or past secrets are revealed, anything can happen.

Many families do overcome their differences and become closer in the process. Unfortunately, other families can splinter. I have seen examples of both, and if I have learnt anything, it is to focus on what is important. The past is the past, but we can do something about the future. As individuals, we may not be able to influence the entire family, but we can decide on our own actions. The family is important, but just as crucial is one's own relationship with the dying person. No one can deal with that except yourself.

Dr Ira Byock, in his book "The Four Things That Matter Most", outlined four tasks around the themes of gratitude and forgiveness. He suggests that we should say: "Please forgive me", "I forgive you", "Thank you", and "I love you". Simple, yet profound, and often very difficult to do. We should not have to wait until a person is dying to express these sentiments, but it is better than never saying them at all. In the "busy-ness" of everyday life, we can overlook the acts of love that our family members – especially our parents – have done and continue to perform. Sometimes those acts seem misguided or disproportionate, but they come out of a good place.

And do not wait too long. Because one day it may be too late for those four things, and there will be a fifth task, a last thing to say, which for many is too painful to bear thinking about. It is a contraction of "God be with you", a spoken blessing to send a traveller safely on their way. It is, of course, Goodbye.

Those Winter Sundays

Sundays too my father got up early
and put his clothes on in the blueblack cold,
then with cracked hands that ached
from labor in the weekday weather made
banked fires blaze. No one ever thanked him.

I'd wake and hear the cold splintering, breaking.
When the rooms were warm, he'd call,
and slowly I would rise and dress,
fearing the chronic angers of that house,

Speaking indifferently to him,
who had driven out the cold
and polished my good shoes as well.
What did I know, what did I know
of love's austere and lonely offices?

by Robert Hayden (1913–1980)

RUNNING HIGHS AND LOWS: GOING BEYOND THE TREATMENT OF SYMPTOMS

There's nothing like a good run to awaken the senses, get the heart pumping, the blood surging and the adrenaline flowing. The ground flowing beneath the feet, the wind slipping past, the watch counting off the number of kilometres covered. But wait – what's that twinge in the heel? And ouch, that sudden stab of pain in the knee...



Dr Krishna (middle) giving an introduction to general practitioners (GPs) on the services available at the NUH Sports Centre.

By Dr Wang Mingchang, Associate Consultant, Family and Sports Physician and Dr Lingaraj Krishna, Senior Consultant Orthopaedic Surgeon and Director, NUH Sports Centre

More Singaporeans are signing up for mass-participation sports events, specifically running. The annual Standard Chartered Singapore Marathon has seen an exponential increase in the number of runners from just 6,000 in 2002 to almost 50,000 in 2017. The recently-concluded Army Half Marathon involved more than 40,000 runners, compared to 15,000 during its first inception more than two decades ago.

Runners who ramp up their training in the lead-up to the event may suffer overuse injuries of the lower limb. This is common in novice runners who increase their mileage too quickly and subject their weight-bearing joints, such as the knee and ankle, to increased stresses. The human body is actually pretty adaptable. Given sufficient rest, structures such as muscles, bone and tendons are able to recover and become stronger to cope with increased load demands.

It is when runners do not rest enough and continue training that overuse injuries occur. Common examples of running-related overuse injuries include plantar fasciopathy, which is heel pain due to trauma to the plantar fascia, a thick band which originates from the heel bone and extends to the toes. Another common injury is patellofemoral pain syndrome (commonly known as “runner’s knee”), which is pain over the kneecap due to cartilage irritation.

Most runners experience an improvement in symptoms with rest and/or cutting back on their mileage. However, for some, the pain persists or recurs when they try to increase their mileage to pre-injury levels. This is despite getting adequate rest. Such cases are usually due to suboptimal biomechanics of running.

Running biomechanics refer to our running posture, gait and the way our joints, especially that of our lower limbs, interact when we move. For example, having an excessively “knocked-knee” gait when running predisposes towards abnormal knee cap movements, as well as increased flattening of the arch in our feet. This can result in problems like patellofemoral pain syndrome and plantar fasciopathy.

The way our feet impact the ground when running also contributes to overuse injury. Taking larger strides and landing on our heels results in increased ground reaction forces. This in turn results in greater forces transmitted to the shin bones and knee joints, causing problems like stress injuries to the shin bones (commonly known as “shin splints”) and patellofemoral pain syndrome respectively.

One also needs to ensure that one’s running shoes are well-cushioned and appropriate for one’s foot type (e.g. flat foot, neutral or high arch). Shoes which lack cushioning support and do not conform to one’s foot type may result in increased stress to the feet and lower limbs, resulting in repetitive strain injury.

Runners can seek help from physiotherapists to address faulty running biomechanics. Physiotherapists are trained to



Dr Krishna and Dr Wang with two GPs at a recent GP Continuing Medical Education event.

assess running gait and muscle strength, specifically those of the hip and lower limbs. They can identify biomechanical and strength deficits, thereafter prescribing specific therapeutic exercises to correct them. Commonly prescribed exercises for runners include hip, buttock and core muscle strengthening. Such exercises help reduce the degree of “knock-knees” when running, which in turn reduces abnormal knee and feet movements and prevent the onset or worsening of overuse injury. Many runners are aware of the need to stretch tight muscles to prevent injury but unfortunately, not many recognise the value of doing core and hip strengthening.

Physiotherapists are also excellent at gait analysis. As part of the biomechanical assessment, they may do a video recording of the patient running on a treadmill. The recording is played back at slow speed and various parameters are analysed, one of which is footstrike pattern and stride length. A runner who presents with bilateral knee or shin pain may be seen to run with large strides and a heelstrike pattern. This runner may be put through a process of “gait-retraining”. This teaches him/her to land more on the midfoot and to reduce the length of his/her strides. This reduces the ground reaction force and can help ameliorate knee or shin pain.

Runners are advised to change their shoes after every 500 to 800km of use. The shoe may still appear structurally intact

but in reality, the cushioning in the midsole would have lost most of its shock-absorption capabilities. Continued use will result in more ground reaction forces absorbed by the runner, contributing to overuse injury. There are also different shoes for different foot types. If you are flat-footed or have low arches, you may be more prone to conditions such as plantar fasciopathy. Be sure to wear the appropriate shoe for your foot type. If you have difficulty determining your foot type and need footwear advice, an option would be to visit a running specialty store which usually has knowledgeable staff who can do a basic foot assessment. If you need more detailed assessments and perhaps customised insoles, we suggest consulting a podiatrist instead.

In summary, preventing lower limb overuse injuries in running is important to ensure continued enjoyment of this universally accessible sport. It is prudent to gradually increase one’s mileage and ensure adequate rest in between training sessions. One also needs to understand the importance of optimising running biomechanics and proper footwear in preventing injuries too.

The NUH Sports Centre is an integrated multi-disciplinary Centre that focuses on the management of sports-related injuries. Backed by a dedicated, skilled and experienced multidisciplinary team, the NUH Sports Centre offers the entire spectrum of sports-related clinical services.



Photo: Regional Health System Planning Office, NUHS

COMMUNITY CARE EDUCATION AT NUS MEDICINE

By Dr Goh Lay Hoon,
Department of Family Medicine, NUHS

What is Community Care in Singapore?

In the United Kingdom and Australia, community care is defined as providing people with service and support to live with dignity and independence in the community or in their homes. This aims to avoid social isolation or institutionalisation. Community care generally refers to care services outside of hospitals or institutions. In Singapore, community care encompasses community-based primary medical care, nursing and social services.

Primary care is the foundation of the healthcare system in Singapore, by providing the first point of patient contact and care in the community. These primary care clinics provide continuing, comprehensive, coordinated, accessible and affordable care for patients of different age groups; treat acute conditions such as upper respiratory tract

infections; manage chronic illnesses such as diabetes and hypertension; and keep the population healthy through health promotion and preventive measures such as targeted health screening and vaccinations. The clinics also coordinate patients' care with other providers and refer patients who require more specialised medical care.

Primary care clinics refer to the 1,600 private general practitioners' (GP) clinics and the 20 polyclinics, with the former meeting 80 per cent of the nation's total primary care demand. The GP clinics range from solo practices to medium and large corporate groups. Community Health Centres, introduced in 2010, assist GPs to take care of chronic patients by providing ancillary and allied health professional support such as physiotherapy, dietary advice, nurse counseling, podiatry and diabetic eye and foot screenings.

About 340 GP clinics have formed 10 networks under the Primary Care Network (PCN) scheme. The network deploys multi-disciplinary teams, each consisting of a GP, nurse and primary care coordinator, to provide more effective chronic disease management for patients. The PCN GPs can also access diabetic foot and eye screenings and nurse counseling.

ALL IN THE FAMILY



Photo: Regional Health System Planning Office, NUHS

The polyclinics and the larger GP groups such as the Family Medicine Centres (FMC) are one-stop, team-based primary healthcare centres, with in-house laboratory, nursing and allied health professional support to coordinate care and optimise people's health in the community.

Home-based services are available for people with disabilities who require regular assistance in order to live in the community. The services cover basic care such as personal care, housekeeping and medication reminders; therapy services such as when a doctor makes a home visit, home nursing, home rehabilitation, etc.

Senior activity centres are communal spaces in the HDB block void decks, which conduct activities to engage the older people in social and recreational activities.

About 4,900 of Singapore's estimated 34,000 practising nurses are in community care. Singapore is also exploring the role of community nurse teams, whose members work within the community that they are assigned, to look after and provide nursing care, health promotion counseling and disease prevention activities for the surrounding population.

Why is Community Care important?

The Ministry of Health (MOH) "3 Beyonds" strategy, viz. beyond hospital to community, beyond quality to value and beyond healthcare to health, was announced in 2017. The strategy is a bid to sustain quality healthcare as demands are projected to increase with the ageing population.

To address the component "beyond hospital to community", the MOH collaborated with numerous government agencies, ministries and private agencies to build capacity, capability and quality of care in community care. Generally, people prefer to access health care in places near their homes and in their communities. Community-based services which optimally manage patients in the community, reduce the reliance on acute hospital services which are more expensive.

The MOH is building up the number of family physicians and other broad-based specialty physicians such as internal medicine or geriatric medicine, who are able to provide holistic care to patients with multiple medical ailments, as Singapore shifts its focus towards preventive and community care. The plan is to train 150 family physicians each year to meet the new care model; to anchor care

ALL IN THE FAMILY

in the community so as to reduce reliance on hospital specialist care; and to reach out to the population in the community to keep them healthy.

Family physicians working in the community have been identified to play an enlarging and pivotal role in holistically managing the healthcare needs of the population. The tasks include promoting health, preventing disease, optimising care of chronic diseases and minimising disabilities due to age, disease and premature death. The family physicians will address primary prevention, disease screening, maintenance of health and end-of-life care.

The Community Health Assist Scheme (CHAS) will be extended to all Singaporeans with chronic ailments. This will enable all patients to qualify for subsidised medical treatment, with tiered benefits based on their income levels, even for treatment at private GP clinics.

With increasing numbers of patients projected to be managed in GP clinics, the community workforce should grow as well, with appropriate and adequate support systems. Healthcare students, in particular medical students should similarly be trained to provide competent community care.

Community care is more holistically and effectively delivered in interprofessional teams, consisting of different health professionals such as doctors, nurses, allied health professionals, pharmacists and social work professionals. Team members work together to meet the varied and interconnected medical and social needs of patients, especially older patients with chronic medical conditions and challenging social issues.

Thus, interprofessional education (IPE) in NUS Medicine is gaining importance and momentum, whereby students from different healthcare professional programmes learn together and are taught shared competencies and one another's unique competencies. The overall goal is to improve the function of a cohesive team-based healthcare workforce.

Medical students in future are likely to be working in interprofessional teams after graduation, whether in institutional or community practice. Therefore, IPE is a crucial step in preparing a "collaborative, competent and practice-ready" NUS medical graduate.

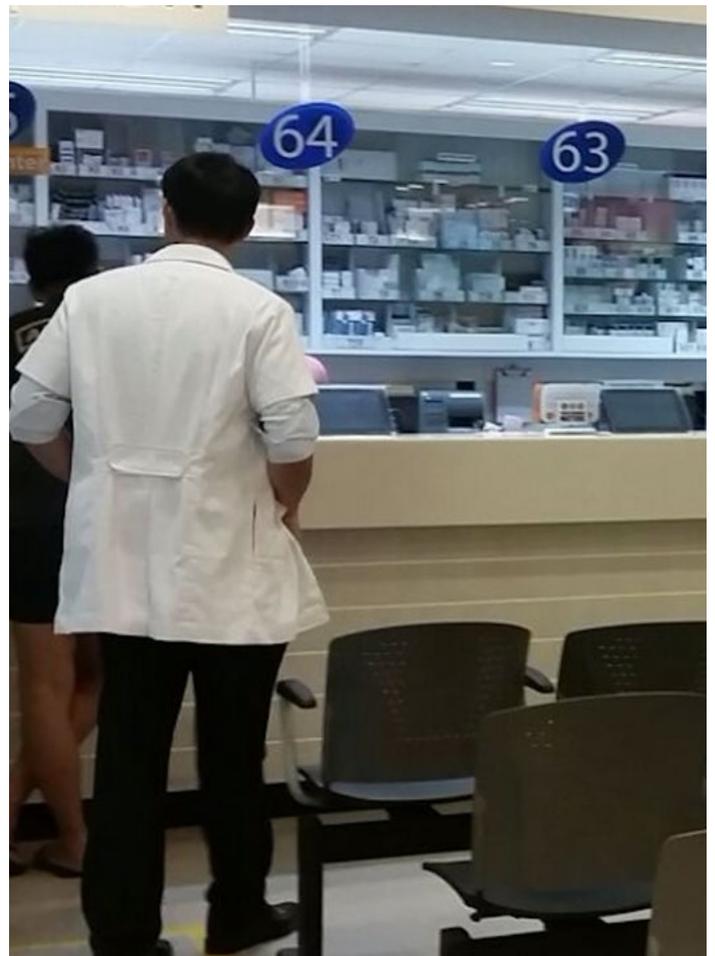
Teaching Community Care in NUS Medicine

The Family Medicine Division in NUS Yong Loo Lin School of Medicine is collaborating with the community service partners to create placements for students with relevant learning outcomes; to continually evaluate and improve these placements and to ensure that students have adequate exposure and understanding of the community services and their linkages to one another, to social care services and to the hospitals. The following are examples of such placements arranged by the Division.

1. Phase I Polyclinic attachment

As part of the early professional exposure to community practice, Phase I students starting from AY2017-18 will be posted to the polyclinics. The learning outcomes are for students to observe and interact with staff and patients; to understand the roles of doctors and other healthcare professionals in delivering health care in polyclinics; to observe the interactions between the healthcare professionals and patients and their families in the polyclinic; and to appreciate the experience of patients and their families in navigating the primary health care system in Singapore.

From the feedback of the AY2017-2018 Phase I students, the polyclinic attachment proved to be an eye opener for them. The students reflected on how they observed elderly patients with chronic conditions navigate a busy polyclinic and how the polyclinic doctors and nurses demonstrated compassion to the patients while skillfully addressing their multiple concerns. Students also recognised the important roles of non-physician colleagues who deliver care in the polyclinic teams. In addition, many students realised that the clinical work in polyclinics is meaningful and impactful and indicated that they would consider working in community clinics upon their graduation as doctors.



Phase I medical student assigned to observe staff-patient interactions at the pharmacy of a polyclinic.

ALL IN THE FAMILY

2. Phase I Caregiver Training Module

The overarching aim is for medical students to learn to work together and to appreciate the role of nurses in the healthcare team. This new module was started for the AY2017-2018 Phase I cohort. Through the interprofessional education platform, Phase I students learnt alongside nursing students in simulated ward rounds and assisted ward nurses in providing caregiving to patients.

The learning outcomes are for students to recognise the complex nature of caregiving; to demonstrate comprehension and practice of caregiving tasks and to assist in caregiving with nurses as teachers. Students learn to assist in basic caregiving tasks such as making beds, changing and bathing, transfer and turning in bed, use of bed pan and commode, changing diapers and taking vital signs such as blood pressure and temperature. Students also have the opportunity to assist in less common or more complex tasks such as wound care, nasogastric tube feeding, care of urinary catheters and use of pulse oximetry.



A Phase I medical student with a year one nursing student changing bedsheet during the simulated ward round in the Caregiver Training Module.

Students' feedback indicated that they appreciated how the nurses role-modelled compassionate behavior towards the patients, despite being busy. They also recognised how the nurses' warm and genuine rapport with patients and family members is pivotal to achieving successful outcomes of caregiving, besides competency in task performance.

3. Phase I Longitudinal Patient Experience

Under the year-long longitudinal patient experience in Phase I, students form small groups with nursing students to make home visits supervised by medical and nursing faculty staff. Patients with chronic conditions or disabilities resulting in a home bound status, are selected for this module. Students make four to five home visits over a year under the mentorship of tutors, who have referred the patients.

The students' learning outcomes are to appreciate the impact of a home environment on patient's illness journey; the impact of illness on a patient's activities of daily living; to recognise the roles of the family and carers in managing the patient's illness; to understand the importance of care continuity between various health care providers in the hospital and community settings; to understand health care needs and health seeking behavior from a patient's perspectives; and to appreciate interprofessional education involving medical and nursing students in this experience.

Students in their groups are required to reflect and submit written assignments based on the learning outcomes. Tutors will meet the students on a regular basis for debriefing, clarifying doubts and to summarise the learning points.

4. Phase III Family Medicine Posting

The Family Medicine posting in Phase III is an apprenticeship comprising active observership with supervised consultations. Students are prepared during foundation workshops early in the posting so that they can learn well during patient encounters in subsequent clinical placements. The workshop covers commonly encountered topics in the community, viz. adolescent health, chronic disease management, healthcare finances, mental health, integrated care for older people and women's health, etc.

Students are posted to the polyclinics and GP clinics, where they are assessed for competency in consultation and communication skills and the ability to articulate a care plan for patients with chronic medical conditions. They used a workbook to collect patient profiles and the clinic practices, to achieve the aim of understanding the family practice landscape through comparison and discussion of one another's experiences in the clinics.



Photo: Regional Health System Planning Office, NUHS

Students also discussed and reflected on the role of family physicians in patient care, based on the themes of communication barriers, doctor-patient discordance, ethical dilemma and mental health issues. Through role-play and discussion with tutors, students arrived at their own learning points about the themes, particularly in application to their clinical experiences.

5. Phase IV Selective Posting

The three-week Phase IV Family Medicine outpatient selective will take place before Phase V year starts in the current AY2018-2019. It will be a timely posting for senior medical students to consolidate and apply learning garnered from previous Family Medicine clinical postings. As doctors-in-training inducted into the workings of the family practice settings viz. the polyclinic, family medicine clinic, or private GP clinics, students will actively participate in the work of the practice, and in the supervised care of patients seen at the clinics.

Conclusion

Currently, there are community-based programmes within certain Phases to address the educational gaps. Further

deliberation and discussion with stakeholders will be required to plan a coherent and aligned community care curricula for medical students' training and assessment. The overarching purpose of educating our medical students in community care is to enable these future doctors to be competent to work in community-based health care services, which will eventually provide the lion's share of health care in Singapore. Our duty as teachers is to prepare medical students to be physicians who will always strive for their patients' best interests, whether in institutional or community practice.

About the writer

Dr Goh Lay Hoon is an Assistant Professor in the Family Medicine Division of the NUS Yong Loo Lin School of Medicine, where she is involved in curriculum development and implementation. She is also Physician Faculty in the NUHS Family Medicine Residency Program and Clinical Lead for the Well Programme in Alexandra Hospital.



HE PULLED A METAL SHARD FROM A FARMER'S HEART

NUS Medicine alumnus Dr Ashok Venkataraman (Class of 2007) was called to extract a 2.5cm piece of barbed wire that had pierced the heart of a farmer in Eugene, Oregon in the United States. That emergency procedure saved the life of the 62-year-old man, who had suffered the accident when the metal shard was caught by his mechanical flail mower and shot into his rib cage. MediCine caught up with Dr Venkataraman, who is an Attending Cardiothoracic Surgeon at the Oregon Heart & Vascular Institute.



With surgical colleagues.

What led you to do your residency in the US, and why North Carolina?

I have always been fascinated by the residency training system in the US particularly with surgery. I had made a decision to pursue training in the US quite early on in medical school. The structured curriculum with protected case volumes for each trainee was appealing. Moreover, I wanted to be fully trained in general surgery first and then pursue cardiothoracic surgery training. In my first medical officer posting in surgery in Singapore General Hospital, I took a three-week break and made my first trip to the US to do a visiting rotation in a US academic medical center. A professor of cardiothoracic surgery at the University of North Carolina invited me to spend an elective with them. I spent two weeks there, loved it so much that six months later, I started residency at that very place.

Did your undergraduate medical studies at NUS prepare you for US residency?

Most certainly! Our curriculum in NUS is very thorough and comprehensive. Our houseman year of training in our local hospitals in Singapore really completes our training. I was well prepared for my US residency. But, I still had to work very hard to settle into the training programme in the US because a number of things are different. The hours in the US training programme were longer, and the culture was quite different too.

The Register-Guard

Subscribe Now

Eugene man, 62, recovers after barbed wire lodges in his heart



BUY PHOTO

HIDE CAPTION

Cardiovascular surgeon Dr. Ashok Venkataraman and Wayne Wiset. [Photo courtesy of Rebecca Wiset] - registerguard.com



A screenshot of the article by The Register Guard on how Dr Venkataraman had to conduct an emergency open heart surgery to save a man's life.

What drew you to specialise in surgery, and then cardiac surgery?

I have wanted to be heart surgeon since I was 12 years old. I never strayed away from that. Cardiothoracic has always appealed to me. In my first year of medical school in Singapore, I was attached to a professor of cardiac surgery at the National University Hospital and spent a lot of time with him working on projects. Throughout my medical school days in NUS, I spent extra time with all the local cardiac surgeons around Singapore – at the KK Women and Children’s hospital, NUH and SGH. The time spent with them continued to cultivate the interest and sowed the seeds to pursue training in the United States as many of these surgeons had done Healthcare Manpower Development Programme (HMDP) rotations here in the US.

What is your work day like at Peacehealth Sacred Heart Medical Centre RiverBend?

Here at Peacehealth Sacred Heart Medical Centre RiverBend, my days are pretty busy with surgery at least four out of five days of the work week. I am usually at the hospital by 6.15am, and finish rounds by 7.15am. Then, there is usually some formal meeting of sorts before I am in the operating room by 8.30am for the first case. On many days, there will be a second case. Some days, there will be clinics in the afternoon. I am on call every third day on average, and every third weekend on average. There can be the occasional emergency case at night too, but that is quite rare these days, as I don’t do transplant surgery at RiverBend. I did a lot of heart and lung transplants in training and those always happen in the middle of the night.

That patient with a metal spike in his heart that made the news – it wasn’t a typical, I guess!

Certainly not! But, penetrating traumatic injuries to the chest are way more common in the US, so we do see a fair share of similar trauma cases.

Popular urban legend has it that surgeons and trauma specialists in American hospitals get lots of practice and experience because of gun violence. What is your view?

It’s certainly true in some ways. I did a full general surgery and trauma surgery residency (five years + one year research) before I did my cardiothoracic surgery fellowship (an additional two years). So in my eight years of training, I have seen a lot of trauma. From gun shots, to stab wounds, to motor vehicle injuries from accidents, assaults, and even disaster victims from hurricanes and such. Reading about them is one thing, managing these complex cases in the operating room in an emergency is quite different. It has made me a better surgeon in many ways.



Dr Ashok Venkataraman with his wife and child.

How do you spend your weekends?

Oregon and the Pacific Northwest, where I live, is a place of phenomenal natural beauty. We also get four nice seasons. And there are lots of things to do outdoors. From skiing, to hiking to water sports. We also travel a fair amount with family to neighboring states of Washington and California to visit friends or to visit bigger cities.

What makes you stay on in Oregon? Does home ever beckon?

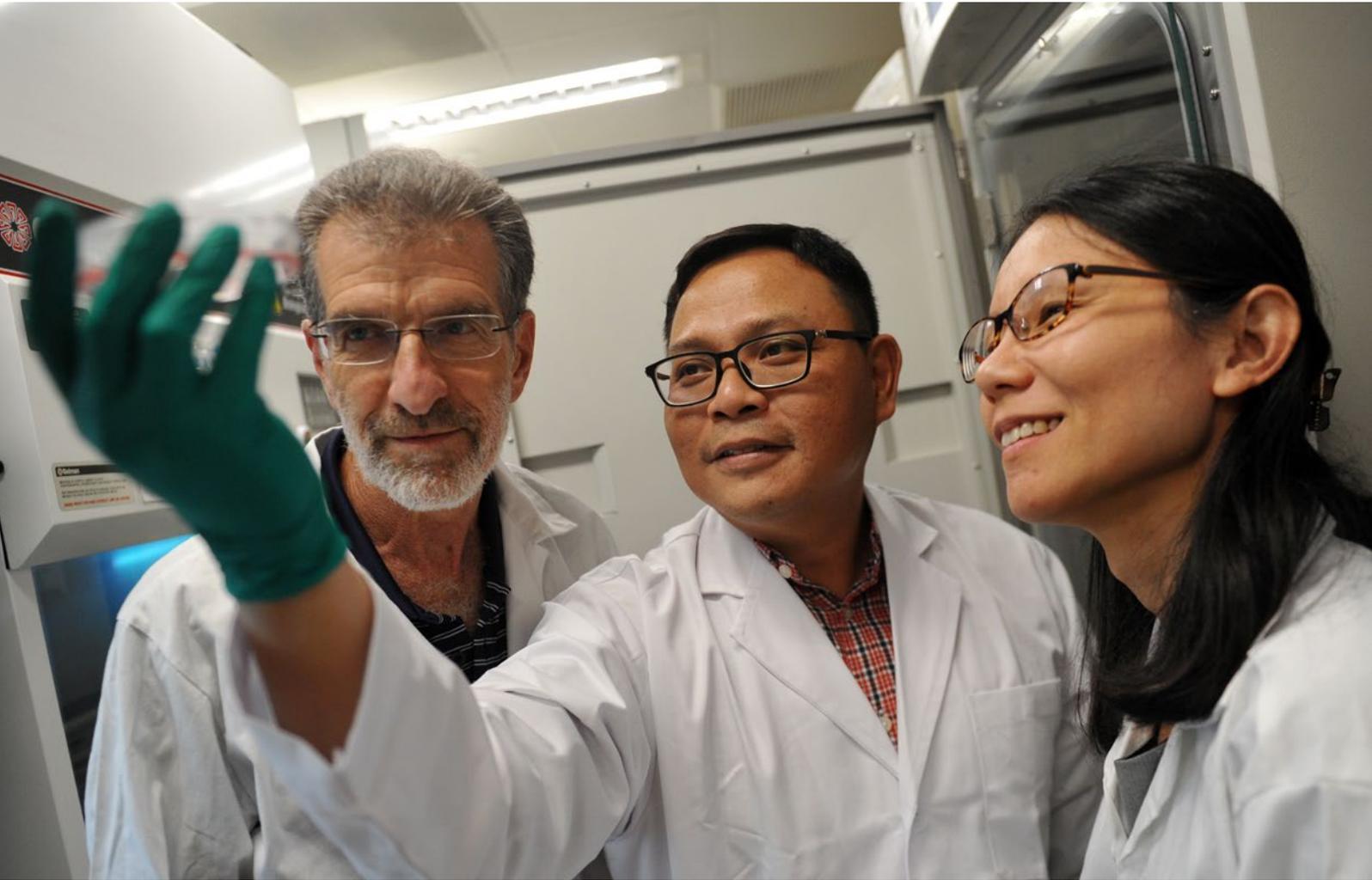
At present, we are enjoying ourselves here. I have a satisfying and busy practice and an excellent team that I work with daily that makes it very enjoyable. Home (Singapore) always beckons. But, it’s more important to be able to do what you love and serve people wherever you are with your individual skillset.

Are your parents with you, or back here in Singapore?

They are still in Singapore! And my only sibling is a cardiologist in Australia. But FaceTime makes life easier. We travel a fair bit and my parents visit us here often.

What would you say to an aspiring med student who wants to practise in the US?

It is a very worthwhile experience. I love every minute of it. But, there are a lot of challenges for the aspiring foreign medical graduate (seeking) to succeed in the US. Certain specialties, particularly surgical, are highly competitive. And there are some immigration hurdles as well that need to be navigated. But, careful planning and ample preparation is all that is needed to succeed.



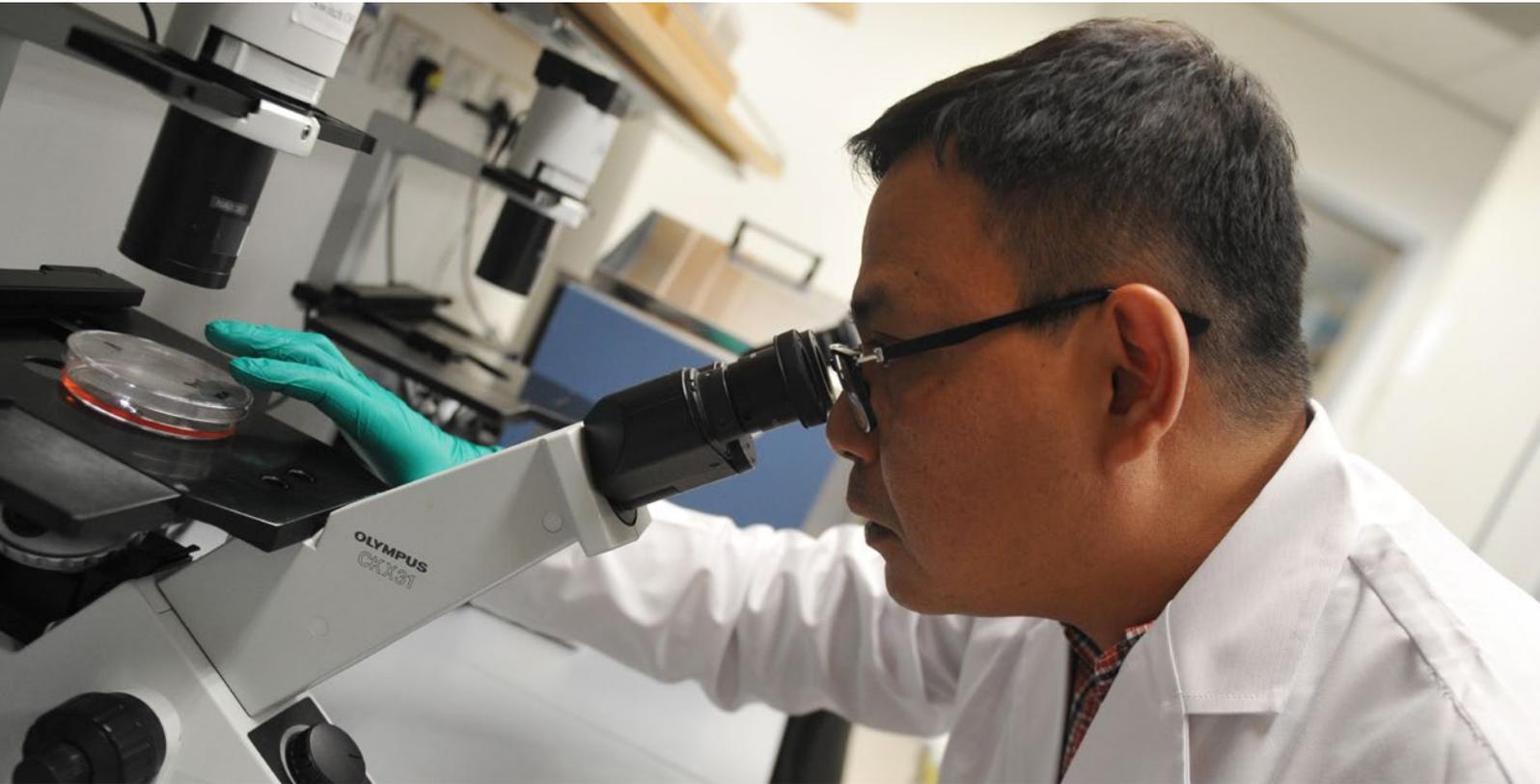
Re-purposed for a career in cancer science - Dr Azhar Ali (middle) with Prof Daniel Tenen (left), Director, Cancer Science Institute of Singapore and Dr Chin Tan Min, Specialist, Medical Oncology, Raffles Cancer Centre (right).

SUCCUMBING TO BIOTECHNOLOGY'S ADRENALINE RUSH

By Dr Azhar Ali, Senior Research Scientist, Cancer Science Institute, Singapore

I never imagined that I would be a scientist. I was born into a working class family and was raised, together with my four older siblings, in the eastern part of Singapore. My dad worked in the military and was a strict disciplinarian. He emphasized the importance of education and getting good examination results. Getting low marks, for any subject, meant punishment in the form of the 'rotan' (Malay word for the wooden cane). My dad, it seemed to me back then, was "allergic" to red marks in my school report card. School was not fun for me in the early years. I would always look forward to the end of a school day, and especially the long June and December school holidays. Though I did not do badly throughout my primary and secondary school phases, my

family and teachers kept telling me that I could have done better. I did not truly comprehend this until I was called up for national service in 1990. I went through the three-month Basic Military Training and then the Combat Medical Orderly course to be a Medic. After getting to know my army mates, I realised that most had their dreams planned – some were going to pursue medical, engineering, finance and law degrees among others. It was at this moment that I questioned myself about my own future. Coming from a pure Science (Chemistry and Physics) background, I realised that I was interested in Biology – what defines a living thing? I was initially worried about my lack of knowledge in Biology. On one fateful day, I came across an article about the emerging field of Biotechnology that was published in the Straits Times. This was an emerging new field, which was recognised as one of the four pillars of Singapore's future economy. Reading the article prompted me to find out more about the area of Biotechnology. After some research, I decided to enroll in the Diploma in Biotechnology programme offered by Singapore Polytechnic after I completed my National Service. This did not really go down well with my dad, who thought I was taking a step backward with this decision. For me, the most important factor to



Dr Ali at work in the research lab.

consider was that I had no prior Biology exposure, and that this was a good first step towards learning Biology.

Biomedical research

Polytechnic education was hectic and I really enjoyed the emphasis on practical sessions despite the long school hours. During the Industrial Attachment Programme, my classmates and I were assigned to various research laboratories in the Department of Biochemistry at the National University of Singapore. The industrial attachment was exciting and it provided the opportunity to learn from scientists – and this was where my journey in biomedical research began. DNA, RNA and proteins are the essence of any living cell and organism. The intricate balance of highly complex processes is crucial in determining the life and death of an entity. This whole new world of biomedical research was an adrenaline rush, one which I had never felt or experienced before. Personal encounters with friends and relatives, who were diagnosed with diseases such as cancer, led to my resolution to pursue undergraduate studies at the Queensland University of Technology in Brisbane, Australia with the support of the Singapore Millennium Foundation (under Temasek Holdings Pte Ltd) in the form of a scholarship. I eventually did my PhD programme in Molecular Genetics at the Yong Loo Lin School of Medicine, National University of Singapore (NUS).

Drug repurposing

My journey into lung cancer research started when I joined Dr Matiullah Khan's group at the Oncology Research Institute, NUS (now known as Cancer Science Institute of

Singapore or CSI Singapore) as a postdoctoral fellow. The dismal prognosis of lung cancer patients, due to limited effective therapeutic options and the development of resistance to drugs, spurred me into lung cancer research, in the hope of finding a way to help these patients. Despite the extensive number of research groups working on lung cancer, the survival rates remain low for lung cancer patients. The main issues of lung cancer treatment are – 1) the high failure rates of clinical trials, 2) the development of resistance to drugs, and 3) the long time and large sums of money (about 14 years at a cost of US\$2-3 billion dollars) to get a new drug onto the market. It is therefore important to use an approach to improve success of treatment, and reduce both time and costs.

One such approach is drug re-purposing, which looks at whether drugs that have been approved for the treatment of certain diseases can also be used to treat other diseases. As the formulation, potential toxicities and pharmacology of these drugs have been established, the process of integration of new candidate therapies into healthcare can be considerably shortened. An example is aspirin: originally developed as a pain reliever for minor aches and fever, it is also used today as an anti-inflammatory drug and a blood thinner and is given to patients immediately after a heart attack to prevent further clot formation and cardiac tissue death.

Hard work, mentors and luck

Juggling reading papers, planning, carrying out experiments, writing manuscripts and reports are part

PEOPLE OF NUS MEDICINE



Dr Ali with colleagues.

of a postdoctoral fellow's life. You need to come up with your own hypotheses and then prove them. You think of science every day, hour and minute literally. You are constantly trying to find ways to prove that your hypothesis is correct or trying to figure out what went wrong with the experiment. Despite the hectic days at work, I really enjoy and relish these challenges. My dream of pursuing drug re-purposing took a step forward when I accepted the post of Senior Research Fellow at CSI Singapore under the Lung Cancer group. Together with Dr Chin Tan Min, a lung oncologist, and Prof Daniel Tenen, Director of CSI Singapore as mentors, my maiden research project on tackling chemo-resistance in lung cancer through drug re-purposing took off. Having good mentors to discuss ideas and test one's scientific thinking is extremely important. The unwavering support and guidance from Tan Min and Dan gave me the opportunity to progress. Most scientists today face great difficulty in getting funding for their research. Opportunities to secure grant money is limited and the rise in prices of consumables has made it difficult to do good research. Fortunately, despite limited available funding, the project moved nicely along for several years. This was achieved through careful planning and focusing on important experiments. The 'lucky break' came in 2017 when I received a three-year funding grant from a private donor, Ms Lee Ying. This funding was extremely crucial as it provided much needed 'fuel' to push the project further.

Setting personal goals

What is life? There is no single definition – each individual has his/her own personal life goals. Someone once asked me, “What are your goals in life?” When I set my personal goals at around the age of 19, I emphasised setting realistic goals – goals that I could achieve in this lifetime. My goals are – 1) Do what you love, 2) Contribute beyond yourself, 3) Resolve to succeed and 4) Positive attitude. Setting life goals and achieving them not only improve your life, but also makes you a happier person. Our life goals are the destinations that we need to reach – some may take a longer time to get there, while some may take a shorter time.

Whatever it is, it is important to be mindful that with each goal, comes its own set of challenges that we need to overcome. Some may be easier while others are more difficult to tackle. Nonetheless, one must never give up and focus on the destination that one wants to reach. As we continue with our journey, family, friends and even strangers may enter our lives – each contributing in their own unique ways, leaving their imprints in our lives. We must never take things for granted nor forget those who have helped us as we tread towards our goals. We must live with gratitude and pay forward that which we have received in this life. I would like to express my deepest gratitude to my family, friends, colleagues, mentors and Ms Lee for their support, without which this journey would not have been possible.

NOVEMBER

DECEMBER

JANUARY

01 November

Dialogue 2018

Level 1, Auditorium, NUHS Tower Block

27-28 November

Raffles Dialogue

Grand Copthorne Waterfront Hotel

09-13 January

**16th Asia Pacific Medical Education
Conference (APMEC)**

University Cultural Centre (UCC), NUS

14 January

NUS-Cambridge Joint Symposium

University of Cambridge, UK

17-18 January

East Asian Forum of Nursing Scholars (EAFONS)

Furama RiverFront Hotel

25-27 January

4th NUHS-Harvard BIDMC Conference 2019

Updates in Internal Medicine

Level 1, Auditorium, NUHS Tower Block

Details are subject to change.

Inspiring Health For All



Yong Loo Lin
School of Medicine