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Counting down to 2021

The history of Singapore General Hospital (SGH) is the history of medicine in Singapore. The first general hospital for British troops was established in Singapore in 1819, but it was only in 1821 that it began serving the general populace — marking the true beginnings of SGH. As the countdown to SGH's bicentennial begins, *Singapore Health* will present snapshots showing changes in medicine and its various disciplines in the past 200 years.



Photos: SGH

» X-rays were introduced in hospitals in 1913.

» Radiology has advanced far beyond x-ray imaging to become an important component of life-saving treatments.

Beyond x-rays

Technological advances allow today's radiology department to go beyond using x-rays for both diagnosis and therapy.

by Associate Professor Tay Kiang Hiong, Department of Vascular and Interventional Radiology, and Associate Professor David Ng, Department of Nuclear Medicine and Molecular Imaging, Singapore General Hospital

Within three years of its discovery by Wilhelm Roentgen in 1895, the first x-ray apparatus was installed in Singapore. X-rays were more a curiosity than a diagnostic test then, and it was only in 1913 that x-ray services were introduced in Singapore General Hospital (SGH).

Since then, SGH has been at the forefront of some of the most important radiology-related developments in the region. In 1983, SGH was the first public hospital to acquire a computed tomography (CT) scanner, where a computer reconstructs x-ray images taken into two- and three-dimensional (2D and 3D) images. This led to dramatically improved diagnostic accuracy, and marks a quantum leap in radiology practice.

Radiology has gone beyond just using x-rays for diagnosis. Ultrasound and magnetic resonance imaging (MRI), which do not use x-rays, are safer and offer different perspectives of "looking inside" the human body.

Technological advances have led to a phenomenal range and sophistication in radiological imaging, which means more accurate diagnoses and prognoses, and better care and treatment.

Today's scanners not only allow us to "see" our internal anatomy

and disease process clearly and in fine detail, some can also evaluate physiological functions and biochemical constitutions of internal organs and tumours. Magnetic resonance spectroscopy differentiates between types of brain tumours, while perfusion imaging assesses the adequacy of blood supply to the heart or brain in a heart attack or stroke.

Significantly, radiology has stepped firmly into the realm of therapy, offering minimally invasive treatments with the help of imaging guidance. Interventional radiologists, for one, are specialists whose work has blurred the divide between imaging and treatment.

Angiography, introduced in the 1950s, marks the beginnings of interventional radiology (IR). With x-ray guidance, imaging of blood vessels is performed by direct needle puncture. With better imaging guidance, refinements in catheters and guidewires, and miniaturisation of medical devices, IR experienced exponential growth from the 1980s.

An indispensable service in hospitals, IR sees more procedures being performed for treatment, rather than for diagnosis, today. At SGH, nearly 12,000 IR procedures are done each year, from routine to emergency limb- and life-saving treatments.

Together with surgery, chemotherapy and radiotherapy,

IR is the fourth pillar of cancer therapy. Interventional radiologists use scans to accurately locate tumours, then insert a needle into the organ to burn or freeze the tumours. They can also administer anti-cancer drugs or radioactive substances into the blood vessels.

Established in 1980, the Department of Nuclear Medicine remains Singapore's only stand-alone nuclear medicine department. A top nuclear medicine centre in the region, the department has strengths in areas that surpass centres in the US and Europe. In 2003, Singapore's first cyclotron was installed in SGH in a joint venture to produce positron emission tomography (PET) radionuclides for use in nuclear medicine.

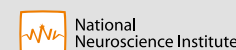
Nuclear medicine uses radioactive-labelled drugs or materials for cancer, cardiac, and neurological imaging. During the imaging scans, small amounts of a radioactive substance (radiotracers or radiopharmaceuticals) are injected or introduced into the body. Radiation emitted from radiotracers bound to molecular characteristics specific to the tumour, helps localise tumours with high precision, image various body systems, and decide on management. Similarly, in radionuclide treatment, radiotracers are injected to target cancer cells, sparing the healthy ones.

In 2017, SGH's radiology-related services were consolidated into the Division of Radiological Sciences for streamlining and collaboration of diagnosis and image-guided therapy. The division includes the Departments of Diagnostic Radiology, Nuclear Medicine and Molecular Imaging, Radiography, and Vascular and Interventional Radiology.

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Selected photos featured were taken prior to the COVID-19 pandemic. For all recent photo shoots, safe distancing measures were adhered to.

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Ward a feat: 50 beds in 50 days

Singapore General Hospital's new isolation facility is a much needed boost in capacity to support the nation's fight against COVID-19 and other infectious diseases.

by Dang Hui Ling

The squat, single-storey building with its canvas roof may seem at odds with its more richly endowed neighbour, the historic and grand Bowyer Block. But the building, looking more like army barracks or a marquee, serves an important purpose — and is creating its own history.

Sitting on a former car park, the 3,200-square-metre building is Singapore General Hospital's (SGH) newest ward. It is not just any general purpose ward, but one

that houses patients who need to be isolated during infectious disease outbreaks. Indeed, when the idea for Ward@Bowyer, or Ward 88, took shape in April 2020, it was at the height of the COVID-19 pandemic in Singapore.

"It was part of the national plan to increase capacity to deal with the COVID-19 outbreak," said Associate Professor Ruban Poopalalingam, Chairman, Medical Board, SGH.

At the time, SGH and other hospitals were stretched beyond their capacity and no one could predict how long the COVID-19 pandemic would last. "So there was a real need at that point to set up this ward," Prof Ruban said.

The ward, though not meant to be permanent amid various expansions on SGH Campus, has increased the number of isolation rooms and can be used beyond the COVID-19 pandemic, such as during other infectious disease outbreaks like seasonal flu, measles, and tuberculosis. When these outbreaks stabilise, Ward@Bowyer can also be used for non-infectious cases. The ward, said Prof Ruban, "would be a good place to house patients until we know exactly what we are dealing with".

“



We had to balance between patients who needed care and were not related to COVID-19, and COVID-19 suspected and confirmed cases. Having these extra 50 isolation rooms was really useful in helping us strike a better balance.

**Associate Professor
Ruban Poopalalingam**
Chairman, Medical Board,
Singapore General Hospital

”

In late August when the number of infections fell, COVID-19 patients were housed back at Ward 68, SGH's regular isolation ward. Ward@Bowyer was then used for patients who needed to be isolated to prevent airborne diseases, such as varicella zoster virus (chicken pox) and pulmonary tuberculosis, which are spread through respiratory droplets.

The ward was not modelled after the hospital's existing isolation ward, which was based on the lessons learnt during earlier disease outbreaks, such as severe acute respiratory syndrome (SARS). Instead, to meet the urgent need for



» Ward@Bowyer, built on an open-air car park, is a significant addition to the hospital's capacity to handle patients with infectious diseases.

A glimpse into Ward@Bowyer

additional isolation rooms at the time, pre-fabricated isolation cabins were used.

Each of the 50 units was pre-fitted with toilets, showers, and other appliances necessary for patients who are infectious and need to be isolated. Put together with minimal construction, which started in mid-May, the ward admitted its first patients on 15 July 2020. It also added to Ward 68's then isolation facility comprising 35 single rooms and 16 beds in shared rooms.

The number of suspected and confirmed COVID-19 cases at SGH ranged from 200 to 300 at any one time during the peak of the COVID-19 outbreak in April and May. Before Ward@Bowyer, wards had to be converted for isolation patients during that period.

Prof Ruban said that SGH had to constantly decide how much of the hospital should be used for COVID-19. "We had to balance between patients who needed care and were not related to COVID-19, and COVID-19 suspected and confirmed cases. Having these extra 50 isolation rooms was really useful in helping us strike a better balance," he said.

The ward is run by a team of 40 nurses trained in intensive care and infection control, led by Ms Thurgathavi P Vellasamy, Nurse Clinician, SGH. The nurses came from different wards, with Ms Thurgathavi originally from the Colorectal Surgical ward.

"When we first came together, we underwent orientation that included understanding the use of the facilities and infection control practices, as well as simulations to ensure that we are able to provide the care that patients in this ward need," Ms Thurgathavi said.

An important feature of the ward is its layout. It had to consider workflow and processes that allow care to be delivered efficiently and safely. For instance, the two-way lockers in the staff rooms are designed to allow the ward staff to shower after their shifts to avoid carrying germs into the community.

During the COVID-19 outbreak, the ward was divided into three zones. The creation of the zones — for patients with acute respiratory infections, suspected COVID-19, and confirmed COVID-19 infections — was an added precaution to lower the risk of cross-contamination.



- Each isolation unit measures 2.3m by 5.6m with a height of 2.5m. The negative-pressure room ensures that viral particles do not escape when the door opens. Oxygen is pumped into the room while the air inside is expunged through a high-efficiency particulate air (HEPA) filter at the foot of the bed. Toilet waste is treated before being discharged to regular sewers.



- Patients who need to have x-rays taken are brought to an on-site booth called SG SAFE.R, which is designed by SGH's Department of Diagnostic Radiology. Made from high-performance polycarbonate plastic panels, the booth is operated by only one radiographer. The patient stands in the booth with his or her body pressed against the x-ray plate, while the radiographer operates the x-ray machine outside the booth, protected by a lead shield that absorbs radiation. As the radiographer and patient do not come into contact, the former wears just an N95 mask. After each session, the booth is disinfected by a healthcare assistant donning personal protective equipment.



- Every patient is given an admission pack containing a digital thermometer, surgical masks, and toiletries, as well as drinks and snacks. A biosensor worn on the wrist monitors round the clock his vitals, such as heart and respiration rate, and oxygen saturation levels, with the information transmitted to the medical team for remote monitoring. The data are also available via an app on a smartphone that is given to each patient. Other apps let the patient communicate with the team. Games and multi-language reading materials are also pre-loaded into the phone. For patients who cannot speak local languages, a picture board in the room helps with some basic words to help them communicate with the medical team.



- Developed with recommendations from SARS experts, the Treatment Room is equipped to provide emergency care. It takes about one minute for first responders to transport a patient from an isolation unit to the room. In a Code Blue situation, the team stationed outside the ward will arrive in five to seven minutes. Patients who require further resuscitative or intensive care will be transferred to SGH wards.



To see how the ward was built in six weeks, scan the QR code.



A second chance at sight

Donating your cornea can help restore the vision of someone with corneal disease.

by Thava Rani

The cornea is a transparent dome-shaped structure covering the front part of the eye. As the eye's outermost layer, the cornea functions like a window that controls and focuses the entry of light into the eye.

Cloudy cornea due to infection, eye injury, congenital conditions, or age-related degenerative eye disease prevents light rays from reaching the light-sensitive portion of the eye called the retina. This may cause the patient to suffer from poor vision or even blindness.

In eyes with cloudy corneas, as long as the nerve and retina at the back of the eye are still healthy, patients can benefit from a corneal transplant.

Local supply shortage

A corneal transplant involves replacing the cloudy unhealthy cornea with a thin layer of healthy cornea from a donor to offer someone the gift of sight. The eyeball is kept intact in the process of donation.

"A healthy donor cornea replaces the patient's opaque and diseased one. When performed by a trained ophthalmologist, the procedure has the potential to fully restore vision," said Dr Anshu Arundhati, Senior Consultant, Corneal & External Eye Disease Department, Singapore National Eye Centre (SNEC).

Close to 500 such transplants are performed annually in Singapore. However, the number of donors has been on the decline in recent years and donations fell to a five-year low of 141 in 2019, said Dr Anshu, who

is also the Clinical Director at the Singapore Eye Bank.

While the Singapore Eye Bank has been able to rely on reputable overseas eye banks, there is still an urgent need to build up the local supply of donated corneas to facilitate transplants.

"Thankfully, the waiting time for a transplant has not been adversely affected despite the shortage of local tissue because of the overseas pipeline we have maintained. However, we should be cognisant of the fact that this supply can be disrupted at any time, particularly during a pandemic like COVID-19," said Dr Anshu.

Who can donate?

Just about anyone can be a cornea donor. There is no blood type requirement. A person's age, eyesight and eye colour do not matter either.

But to ensure the safety of the recipients and medical team, all donors undergo stringent screening. Individuals who have had communicable diseases and infections, certain cancers and neurological conditions, eye diseases, and other illnesses that may compromise the safety and quality of the corneas will not be able to donate their corneas.

Donation procedure

A recent review of potentially suitable cases over the last three years revealed some common reasons behind why relatives decline the donation on behalf of their deceased family member. These include the family wishing to keep



» Dr Anshu Arundhati said that a corneal transplant has the potential to fully restore vision for a patient with a diseased cornea.

the body intact, relatives being too distraught when approached about the donation, or family members not wanting to put the deceased through any further "suffering".

An understanding of the process of donation may ease some of their concerns.

Cornea removal takes about 30 to 45 minutes, and is usually performed shortly after death. Under sterile conditions, the cornea disc and a small rim of surrounding scleral tissue (white part of the eye) are removed and transferred to a special cornea storage solution, and stored at low temperatures.

The body of the deceased is treated with utmost respect throughout the entire process. The removal of the corneas will not result in any form of disfigurement, allowing for an open casket funeral service.

Developing alternatives

There is currently no acceptable artificial replacement alternative for a human cornea, though several groups around the world

Donating your cornea



After the passing of a loved one, you may be too distraught to make the call for cornea donation, or may wish to keep his or her body intact. If your loved one had completed an Organ Donor Card or previously communicated a wish to donate his or her corneas, the decision may be easier for your family.

Make your intentions known

- Anyone above 18 years of age can pledge to donate any organ or tissue upon their death. Fill out an Organ Donor Card issued by the Ministry of Health and carry it with you at all times. Becoming a donor is a personal decision.
- The Singapore Eye Bank has an active Hospital Eye Donation Programme at Singapore General Hospital, Changi General Hospital, National University Hospital and Tan Tock Seng Hospital.
- Singapore law allows the deceased's family to make the decision of cornea donation on his or her behalf. Counsellors from the Singapore Eye Bank will approach the family to seek consent.

Remain on the Human Organ Transplant Act (HOTA) scheme

- In the event of death from any cause, the HOTA allows for the kidneys, heart, liver and corneas to be removed for the purpose of transplantation. HOTA covers all Singapore Citizens and Permanent Residents aged 21 years and above who do not have mental disorders, unless they have opted out of the scheme.

are actively seeking solutions to counter the global donor shortage.

For example, clinicians and scientists at SNEC and Singapore Eye Research Institute are currently working on tissue-engineered constructs.

Primary human corneal endothelial cells are cultivated, expanded, and subsequently transferred to a carrier substrate for implantation. If this is successful, a pair of donor corneas can create up to 80 constructs and potentially alleviate the donor cornea supply crunch in the future.

Every drop counts

Cord blood donation saves lives without any pain to mother or baby.

by Annie Tan

At the age of four months, Esmond Cheng was diagnosed with Severe Combined Immunodeficiency, a rare genetic disorder that causes infants to be highly susceptible to severe infections. Doctors advised that a bone marrow transplant was his only chance of survival, but Esmond's parents were unfortunately not suitable matches for his transplant.

They then turned to the bone marrow and cord blood registries, where, much to their relief, a suitable cord blood transplant match was found in the inventory of Singapore Cord Blood Bank (SCBB) – Singapore's only public cord blood bank. Today, the seven-year-old boy is healthy, thanks to cord blood donations.

Life-saving potential

Cord blood is the blood left in the umbilical cord and placenta after a baby is born and the cord is cut. It contains billions of stem cells that can be used to replace damaged bone marrow cells and restore the blood systems in patients with blood cancers, including leukaemia and immune deficiencies.

In Singapore, parents have the option of donating their baby's cord blood for such life-saving procedures, or banking it for private use. Since the blood is extracted after the cord is cut, the collection is non-invasive and completely painless for both mother and baby. If parents opt not to donate or bank the cord blood, it will simply be discarded after the child's birth.

"Annually, SCBB receives about 4,000 donated cord blood units. This makes up about 1 per cent of the total number of births in

Singapore," said Professor Aloysius Ho, Medical Director, SCBB.

This is hardly enough. Lymphoma and leukaemia are amongst the top 10 most common cancer-related causes of death in Singapore, and most of the patients requesting to receive cord blood units from SCBB are adults with blood cancers. Every year, 40 to 60 per cent of patients in Singapore who need a haematopoietic stem cell transplant to survive are unable to find a suitable stem cell match from bone marrow donors and international public cord blood banks.

A ray of hope

One of the main reasons for the low number of donations is that expectant parents do not have complete information on the benefits and limitations of public cord blood donation and family cord blood banking before making their decision to donate or store for their family.

"Families who store their baby's cord blood privately often do so thinking that it can be used for transplant needs within the family. However, most transplant physicians would not use a baby's own cord blood to treat his or her hereditary, genetic or haematological diseases, such as leukaemia. Parents need to be aware that should their child develop leukaemia, the child's stored cord blood may already contain premalignant cells and cannot be used to treat the child," said Prof Ho.

The chance of a suitable match between the donor's siblings and the donor's cord blood is 25 per cent since each child inherits half of their genetic

material from each parent. With more than 70 per cent of patients unable to find a match within their family members, many rely on public cord blood banks like SCBB and adult donor registries.

Urgent need

For unrelated recipients, cord blood transplantation has yielded good results. Over the past 15 years, SCBB has facilitated more than 270 transplants for life-threatening blood cancers and disorders both locally and internationally.

"Stem cells harvested from the umbilical cord blood are the earliest source of stem cells available and are at the most naïve state, which means that they have the most potential to mature into other cell types. They are unique and can overcome some of the limitations of adult stem cells from bone marrow. They are also easily adaptable and able to accept a higher level of mismatch due to its naivety," Prof Ho said.

One key benefit of cord blood transplant versus bone marrow is the lower risk of graft-versus-host disease (GvHD), where the donor's cells attack other healthy cells within the body.



According to Professor Aloysius Ho, Medical Director of Singapore Cord Blood Bank, the low number of donations is due to a lack of awareness on the benefits and limitations of public cord blood donation.

Families who store their baby's cord blood privately often do so thinking that it can be used for transplant needs within the family. However, most transplant physicians would not use a baby's own cord blood to treat his or her hereditary, genetic or haematological diseases, such as leukaemia.

Professor Aloysius Ho,
Medical Director,
Singapore Cord Blood Bank

Currently, there is an urgent need for cord blood donations, especially for Singaporeans and Asians. Finding these matches remains a challenge as the majority of stem cell registries are of Caucasian ancestry. With increased donations, many patients can benefit from the cord blood inventory, and recover from diseases and illnesses they may be suffering from.

To learn more about SCBB's public donation and family cord blood banking services, please visit www.scbb.com.sg.

Back on their feet

The Return-to-Work Programme supports injured workers in their recovery and empowers them to continue making positive contributions at the workplace.

by Annie Tan

While preparing ingredients for pizza, Ms Jane Tan* got her hand caught in a grinding machine, badly tearing her hand and forearm. After undergoing extensive reconstructive surgery and hand therapy at Singapore General Hospital (SGH), her hand function improved.

After she was discharged to SGH's Specialist Outpatient Clinics for regular reviews, she was found to be eligible for the hospital's Return-to-Work (RTW) programme, which helps employees retain their jobs and return to work as soon as they are able. For some, the discussion

with employers is to allow them — if possible — to ease into their job earlier, working on lighter tasks, before resuming their previous work.

Ms Tan's employers were able to offer her administrative duties in the interim. She worked hard, waking up early to open the restaurant, order supplies, and handle other tasks. Yet, she was discriminated against by envious colleagues. She knew that she could not claim insurance for therapy indefinitely, and so strived to get well as quickly as possible. Unfortunately, she did not get back full function of her hand — albeit, the non-dominant side —

because of extensive injuries.

Despite these hurdles, she managed to keep her job with the support of the SGH-RTW coordination programme.

"Research has shown that the longer a worker is out of work due to an injury, the less likely he or she will be able to assimilate later. We advocate for patients, helping them retain their employment as most of them are breadwinners for their families," said Mr Benjamin Yap, Senior Occupational Therapist, SGH.

SGH's RTW programme was launched in 2018 to help such patients safely cope with new challenges. "Before its launch, workers who took prolonged sick leave ran the risk of losing their jobs. Those who chose to return to work too soon to safeguard their livelihoods often suffered injuries again," said Mr Er Wei Xiang, Senior Physiotherapist, SGH.

Studies have shown that someone who is off work for 20 days has a 70 per cent chance of returning to work. But if he has been off work for 70 days, his

chance of returning drops to 35 per cent. To date, the RTW programme has helped more than 50 workers return to gainful employment.

In addition to their regular jobs, Mr Yap and Mr Er are RTW coordinators who help patients — mostly chefs, technicians, and construction and manual workers — who have suffered accidents at the workplace. These patients typically have burns and injuries to their hands, ankles, shoulders or spine.

Once employees are enrolled in the RTW programme, the coordinator liaises with the patient, his employer, and healthcare professionals to review his medical condition and job demands. If necessary, the medical team may intensify rehabilitation. The patient's accommodation and working arrangements may also have to be changed. If he is not able to return to his old job, referrals can be made to government employment centres or community services for vocational training or a new job.

Employers' participation and support are crucial. In this respect, the programme is also designed to support employers. "Many employers have the misconception that RTW coordinator engagement is a form of scrutiny or penalisation of their work-safety culture," Mr Yap said, noting some employers' reluctance to enrol workers in the programme.

The RTW programme, however, should be seen as benefiting both employers and employees. Not only does the employer retain manpower, he is often viewed by his other employees as someone who cares for his workers and not someone totally driven by profitability.

Workers whose services are terminated early because of injuries can be driven to seek financial compensation. Such cases involve time, effort and costs on both sides, especially if a suitable compromise cannot be found and they go on to litigation for a solution.

*not her real name



Mr Benjamin Yap assesses Mr Er Wei Xiang, playing a patient (a lorry driver who has injured his arms). Mr Yap types in information, such as resistance, to assess whether the patient is able to drive and turn the wheel of a heavy truck safely.

Photos: Vernon Wong



(above) Mr Yap is showing Mr Er how to use the machine that has a spade attachment to perform digging.

(left) Many patients under the RTW programme are shipyard workers with back injuries. Mr Er is pushing a platform holding different weights to evaluate his functional capacity. If patients are not able to do so, their jobs may have to be modified, says Mr Yap.

A gift of life during the pandemic



With revised guidelines in place, critically ill patients can continue to receive life-saving organ transplants during the COVID-19 outbreak.

by Annie Tan

In March this year, Mr Koh Khim Teck became one of the first patients to receive a transplant during the COVID-19 pandemic.

His condition took a turn for the worse when his liver cancer stopped responding to treatment, and a transplant became critical. Mr Koh was able to undergo the life-saving procedure because of revised transplant guidelines developed during the disease outbreak.

A lack of viable organs and long waitlist already make it hard for patients to get a suitable organ. With the virus outbreak, the concerns of infection added to the risks associated with a transplant. But for SGH transplant specialists, closing the service was not an option.

"COVID-19 could last for months or even one to two years. If we do not think and plan ahead, patients [may] fall off the waitlist and die from disease progression," said Dr Jasmine Chung, Consultant, Department of Infectious Diseases, SGH.

To keep this essential programme open, SGH developed organ transplant guidelines in February 2020. The guidelines weigh the urgency of each case against complications, the severity of COVID-19, and the current availability of resources.

For instance, living donor kidney transplants were suspended as patients can function on dialysis, while deceased donor kidney transplants resumed in April. Transplantation for organs

such as the heart and lung, which cannot be replaced with a viable alternative, had continued with certain restrictions. As of October, both living and deceased donor transplants for the kidney and lung are allowed.

For a safe transplant, there must be sufficient operating theatres, intensive care units (ICUs), designated transplant wards, medical equipment, and blood products. For patient and staff safety, hospital-wide heightened infection measures were also necessary. This includes safe distancing, enhanced personal hygiene, adequate personal protective equipment, and stringent screening and testing criteria.

To reduce the risk of infection, the donor transplant team, which may need to travel to another hospital to collect the organ, is kept separate from the recipient team that performs the transplantation. After surgery, patients are nursed in a single room to further minimise the risk of COVID-19 transmission.

Managing risks

While the risks of infection can be minimised within the hospital, the patient also faces the possibility of being infected when he returns home and into the community. "If they get infected by COVID-19, especially within the first year of transplant, it may have a bearing on graft survival and patient survival," said Dr Chung.

Based on global reports, some 70 to 80 per cent of transplant

patients infected with COVID-19 require oxygen therapy, and 20 to 30 per cent may become critically ill, require ICU care, or succumb to the disease. In healthy patients, only 15 per cent of COVID-19 infections are severe and 5 per cent critical.

Nevertheless, patients are often willing to take the risk. According to Associate Professor Jeyaraj Prema Raj, Head, SingHealth Duke-NUS Transplant Centre, 83 per cent of waitlisted patients in an informal study expressed willingness to continue with the transplantation during the pandemic.

"The key is speaking to patients because they are the ones who are sick; they are the ones who will receive the organs. For someone who has end-stage lung disease or end-stage liver cancer, the potential for a change in life is tremendous. So once we know our patients are keen, we physicians have to make it as safe as possible for them," said Prof Prema Raj, who is also Senior Consultant, Department of Hepato-Pancreato-Biliary and Transplant Surgery, SGH.

Apart from the deceased donor liver transplant Mr Koh underwent, SGH has also successfully performed a living donor kidney transplant and a deceased donor lung transplant since the introduction of the new guidelines.

At SGH, a transplant team is on standby round-the-clock to make such miracles happen for the 184 patients on the solid organ transplantation active waitlist.



The trial must go on

Even with the ongoing COVID-19 pandemic, clinical trials for potentially life-saving investigational therapies continued for patients battling cancer.

by Eveline Gan



»» The challenges amid the evolving COVID-19 situation gave Clinical Associate Professor Daniel Tan (above) and his team at NCCS the opportunity to improve clinical trial processes.

For some people battling cancer, clinical trials — deemed the lifeblood of promising treatments that are undergoing tests — provide a ray of hope. However, the COVID-19 pandemic upended many potentially life-saving trials around the world.

This, too, was the case for Singapore when it entered a “circuit breaker” period between 7 April and 1 June 2020. To contain the escalating number of COVID-19 infections, non-essential clinical services and research activities, including clinical trial work, came to a grinding halt.

However, researchers from the National Cancer Centre Singapore (NCCS) continued to work behind the scenes to ensure that oncology patients enrolled in pre-existing trials could still access the investigational therapies, which could be potentially life-saving, during the pandemic.

One of these researchers is Clinical Associate Professor Daniel Tan, Senior Consultant, Medical Oncology, and Deputy Head, Division of Clinical Trials and Epidemiological Sciences, NCCS. Prof Tan oversees the Phase 1 trial programme, which investigates and monitors the safety profiles of novel cancer treatments in the early development phase. Phase 1 is

the first part of three clinical trial phases to assess if a new drug or treatment is safe and efficacious before it can get regulatory approval for clinical use. Phase 1 trials may involve 20 to 100 trial participants.

“Trials are quite labour-intensive in that a lot of work is required to ensure data is accurately captured. During the “circuit breaker” period, clinical trial sites had to put some trials on hold due to the limited number of coordinators and other trial team members that could be allowed on-site,” Prof Tan said.

Thankfully, existing trial participants were able to continue with the programmes they were enrolled in before COVID-19, taking into consideration safe-distancing measures to ensure the health and safety of participants.

COVID-19 challenges

Prof Tan and his team met with their fair share of challenges while navigating clinical trial protocols during a pandemic. Among these were the assessment of ongoing trials as essential services while managing public health challenges.

As the COVID-19 situation evolved, Prof Tan had to constantly re-evaluate the risks and benefits of every procedure.

“The situation was so dynamic that we were adapting on a weekly basis to assess what was the best

way we could proceed as things continued to evolve rapidly.”

Before the pandemic, overseas patients participating in NCCS clinical studies would fly into Singapore to receive treatment.

Maintaining the trial drug supply to patients overseas was another major challenge, but thanks to careful planning and coordination, the team managed to circumvent the obstacles.

“We had lengthy discussions with our sponsors, the Health Sciences Authority and Institutional Review Board, to help the trial patients get their supply. We also had to consider whether these patients should continue visiting NCCS for trial assessments and medication re-supply, or whether the drug should be delivered directly to them. At the same time, it was vital to ensure regular communication with patients to reassure them that our trial team was actively working to facilitate continued supply of their medications. After much work and in an unprecedented fashion, we succeeded in delivering drugs to our patients based overseas,” Prof Tan said.

Silver lining

Despite the difficulties, Prof Tan said that there has been “some good in adversity”.

“We learnt that some of the things we previously thought were inconceivable could actually be done. This leaves room for continued improvement for our clinical trial processes.”

Adapting to the new normal of COVID-19, patient recruitment and the running of clinical trials at NCCS have been restored, albeit with some changes due to the pandemic.

Reiterating the importance of clinical trials, Prof Tan said that there is a need to remain invested in developing new and more effective treatments as they bring hope to patients battling cancer.

There have been promising developments in personalised cancer care with targeted therapies and immunotherapy, which are tailored for specific cancers and generally have fewer side effects. For many cancer patients, these new and improved treatments may offer new hope.

“We do not yet have all the answers on how to treat and cure cancer. As long as there is this gap, we will constantly drive progress and strive to do better,” said Prof Tan.

Walking with cancer patients

Senior Principal Physiotherapist Ms Elizabeth Chan helps patients even before their diagnosis and continues to do so at each stage of treatment to speed up the recovery process.

by Thava Rani

For KK Women's and Children's Hospital (KKH) Senior Principal Physiotherapist Ms Elizabeth Chan, the interest to pursue physiotherapy for cancer patients as a sub-specialisation was sparked when she was still an undergraduate, following a clinical attachment at an oncology ward. This was unsurprising given her empathetic nature, selflessness, and inherent sensitivity towards others.

"When patients are diagnosed with cancer, they often go through a long and difficult journey. I wanted to use physiotherapy to support them through it," said the 38-year-old.

Having joined KKH's Physiotherapy Department 15 years ago, Ms Chan now heads a team focusing on women's health. She oversees the daily operations of her team, and steps in to troubleshoot when needed. The team provides care for female patients with a wide range of conditions requiring physiotherapy support, including those diagnosed with cancer.

Ms Chan sees about six to eight patients a day, spending up to an hour with each of them, depending on their condition.

Every step of the way

Ms Chan begins journeying alongside her patients even before they are diagnosed with cancer.

When patients get hospitalised and are awaiting the investigation results for their diagnosis, she prescribes exercises to improve their mobility and prevent deterioration of their physical function during the hospital stay. If they require surgery, she helps them get physically fit for it, so as to speed up their recovery process.

After their surgery, Ms Chan recommends movement and pain relief strategies so that patients can gradually resume their functional movements and daily activities.

Most patients undergo further treatment, such as chemotherapy, radiotherapy, and endocrine therapy,



which may have side effects.

Lymphoedema, or long-term swelling of the arm or leg, is one example of such side effects.

"I saw how the condition greatly affects patients' daily lives and I wanted to help them in some way, so I chose to specialise in the field of lymphoedema management," said Ms Chan.

She performs lymphatic drainage techniques on these patients to reduce swelling, and prescribes the appropriate type of compression to maintain or further bring down the swelling. She also teaches them exercises and self-care tips, including a simplified version of the lymphatic drainage technique, so that they can better manage their swelling.

"We focus on using compression to enhance blood and lymphatic circulation. I provide them with stockings or compression garments, and teach them how to use compression bandaging, which is an important component of the treatment."

Coming to terms

In this line of work, Ms Chan understands that some of her patients will inevitably lose the battle against cancer. Nevertheless, she strives to help them cope with symptoms, such as pain and swelling, so that they can be as comfortable as possible in their last days.

"After building such a strong rapport with them over the years, it is heartbreaking to witness their fight coming to an end. But knowing that they have come to some form of acceptance helps me get through the situation. I feel privileged to be a part of their lives," she said.

Passion to serve

Apart from her work with cancer

patients, Ms Chan also helps women who suffer from osteoporosis. For these patients, exercise is a vital part of their treatment. Prior to the COVID-19 pandemic, Ms Chan would conduct group exercise classes for women with low bone mass. Currently, the team is looking to resume some of these group sessions virtually and in a safe manner to enable patients to continue exercising.

"For a whole hour, we exercise together, and this experience is complete with background music. I modify the exercises to make sure they are safe even for the elderly. But do not underestimate them — some of them are pretty fit even though they are in their 70s!"

Outside of work, she finds time to volunteer at the Women's Cancer Support Group and the KK Alpine Blossoms Breast Cancer Support Group. She conducts training and exercise sessions there, sharing tips with patients along the way.

"This is my way of giving back. Knowing that the nuggets of information I share motivate some patients to start or resume some form of physical activity encourages me to continue giving my time to these causes," she said.

Her passion for her patients shines through. Last year, Ms Chan was pleasantly surprised to receive the Efficiency Medal at the National Day Awards. The award is given to those who show exceptional devotion to duty or for work of special significance.

"It is very meaningful to be there for patients at the lowest point of their lives. We must stand by them, support them through the difficult times, and help them look ahead to their recovery."

Photos: Wayne Toh

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Healing from the heart

Associate Professor Low Lian Leng focuses on building a good doctor-patient relationship while supporting patients on their healing journey.

by Annie Tan

When patients are unable to spend their final moments with their family members, it can be heart-wrenching. During the COVID-19 pandemic, when hospitals tightened visitor policies to minimise the risk of infection and for the safety of patients and their loved ones, many doctors like Associate Professor Low Lian Leng, Head and Consultant, Post-Acute & Continuing Care (PACC), Outram Community Hospital (OCH) went beyond their call of duty to bring care and comfort for their critically ill patients.

For example, when an elderly palliative patient requested to

meet his grandchildren to fulfil his last wishes, Prof Low and his team, together with their support operations and nursing colleagues, made it happen with coordinated efforts. They put in extra care to ensure that the visit took place smoothly and safely.

Prof Low exemplifies this spirit of going the distance to help patients in his day-to-day work. Despite his busy schedule, which also involves looking into new ways and programmes to benefit different groups of patients, Prof Low always makes time to visit each of his patients to find out how they are doing.

Care continuity

In fact, being able to build a strong doctor-patient relationship with his patients was what drew Prof Low to family medicine in the first place.

"When I was a Medical Officer in a polyclinic, I realised that many patients suffering from chronic diseases require good primary care management and there was a real opportunity to prevent complications with good preventive care, education, and a trusted doctor-patient relationship," said Prof Low.

Family doctors in community hospitals have more time to understand each patient better as

the average length of stay per patient ranges from three to four weeks. During this time, the medical team is able to provide holistic care for patients, and delve deeper into their medical conditions as well as manage other psychological and social issues.

Prof Low also makes it a point to go the extra mile for each patient. Together with his team, he coaches patients' family members on caregiving duties and helps coordinate the care services required in the community to ensure that patients get adequate support after their discharge from the hospital.

"As family physicians, our aim is to ensure that the patients safely return home to family members who can confidently take care of them, while helping them to continue receiving care from primary and community care providers. Seeing many of our patients recuperate from serious illnesses and cope well in the community brings much meaning and motivation to me," he added.

His passion for continued community care extends through his role as Director for the Population Health and Integrated Care Office (PHICO) in Singapore General Hospital (SGH). The office is responsible for overseeing integrated and community care programmes across the SGH Campus. Prof Low's team built the ESTHER Network Singapore to promote person-centred care, and have trained competent coaches from 48 health and social institutions to date.

COVID-19 and beyond

When the COVID-19 pandemic hit, Prof Low and the OCH team had to help ramp up capacity for the OCH wards earlier than scheduled in a collaborative effort with SGH to allow more patients to receive continued care.

Thanks to the extra hours put in by the team, OCH has already opened its seventh ward within nine months since starting operations in November 2019.

Within a short time frame, the team has also developed protocols with SGH for the safe transfer of patients, as well as strict infection control standards to prevent any risk of transmission.

With his practice centred on the doctor-patient relationship, Prof Low continues to enhance countless patients' recovery journeys in both personal and meaningful ways.

As family physicians, our aim is to ensure that the patients safely return home to family members who can confidently take care of them, while helping them to continue receiving care from primary and community care providers.

Associate Professor Low Lian Leng
Head and Consultant, Post-Acute & Continuing Care,
Outram Community Hospital

Responsible and effective use of antibiotics

In view of the World Antibiotic Awareness Week in November, we take a look at some important things you need to know about antibiotics.

Contributed by

Dr Loo Yu Xian

Consultant, Post-Acute & Continuing Care,
Outram Community Hospital

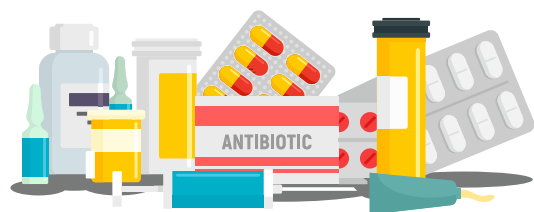
Ms Charissa Ee

Senior Pharmacist, Outram Community Hospital



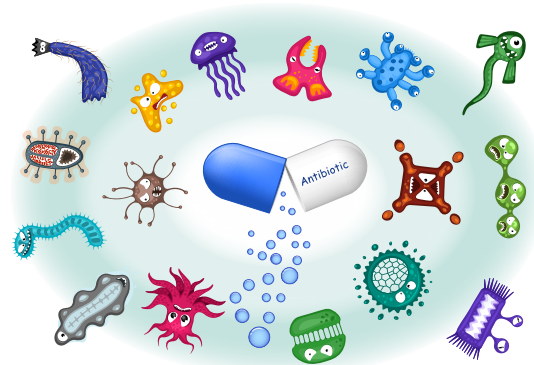
What are antibiotics?

- Medicines used to treat infections caused by bacteria
- They can be in liquid, tablet or capsule forms
- Administered through injections, or applied as creams, ointments, or eye and ear drops



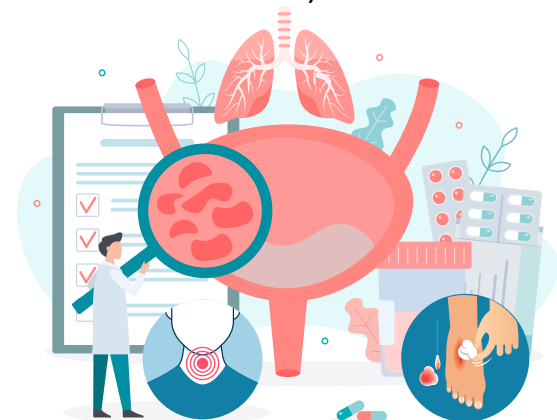
How do they work?

Antibiotics kill germs and stop them from multiplying.



What can they treat?

- Bacterial infections in organs, such as the lungs, throat and bladder
- Wounds on the body



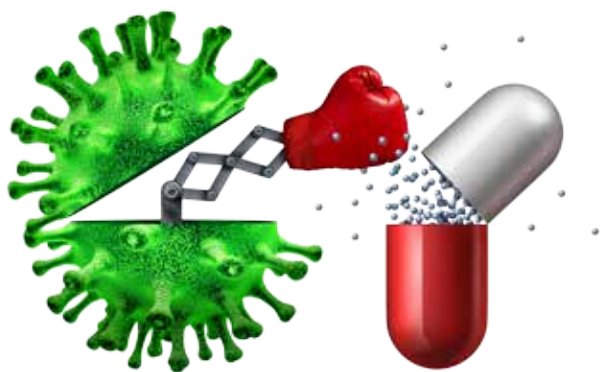
What can't they treat?

Antibiotics cannot be used to treat the common cold and flu as they are not effective against these illnesses, which are caused by viruses.



What happens if antibiotics are overused?

Bacteria can adapt to antibiotics and become immune to them, resulting in antibiotic resistance. The risk of this is greater when the antibiotic medication is strong and taken over a long period of time.



Side effects

Taking antibiotics after food may prevent common side effects, such as diarrhoea, nausea and vomiting. Inform a doctor if

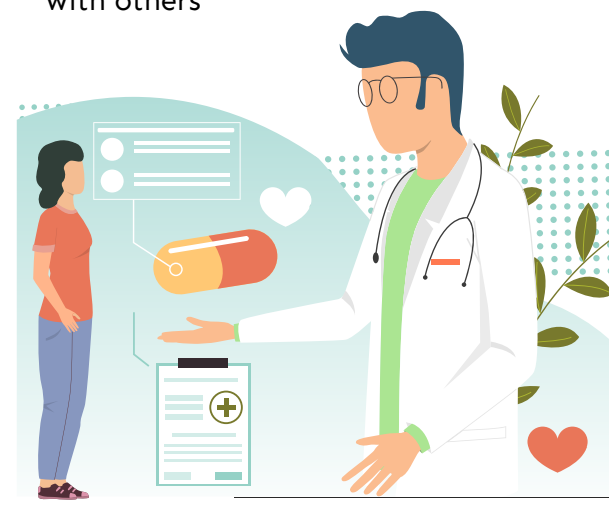
- you are pregnant, breastfeeding, or have any drug allergies
- you develop rashes or any signs of allergy after taking antibiotics



Best practices

Reduce the risk of antibiotic resistance by:

- using antibiotics only when they are prescribed by the doctor
- following instructions strictly on the duration and frequency of antibiotics consumption
- completing the course as prescribed, even if you feel better or have recovered
- not taking leftover antibiotics from a previous course or sharing antibiotics with others



Prevention is better than cure

Nurse-led study protects stroke patients from life-threatening complications.

by Suki Lor

Nurses at the National Neuroscience Institute (NNI) and Singapore General Hospital (SGH) are leading a project to prevent stroke patients with limited mobility from developing a potentially fatal condition caused by blood clots in leg veins.

Deep Vein Thrombosis (DVT) is a blood clot that occurs within a deep vein, usually in the leg. Part of the blood clot can break free and travel up to the lungs, where it can lodge and form a pulmonary embolism (PE). DVT and PE are also known as Venous Thromboembolism (VTE).

Without any intervention, approximately 10 to 50 per cent of acute stroke patients run the risk of VTE, which can have serious consequences. "VTE can be fatal and survivors may experience a long-term condition called

post-thrombotic syndrome (PTS). This can cause pain, swelling and chronic wounds in the leg that has the clot," said project lead Dr Ng Wai May, Advanced Practice Nurse and Deputy Director of Nursing, NNI.

"The good news is that VTE is mostly preventable in stroke patients if they are put on an intermittent pneumatic compression (IPC) device," she added.

This improves blood circulation, helping to keep DVT at bay.

Closing the gap

Dr Ng noted that before the project started in 2018, many acute stroke patients at SGH were not prescribed the preventive treatment, even though the technique is simple, affordable, and non-invasive. The project

addressed this shortfall by empowering nurses to identify stroke patients who would benefit from IPC and start the preventive treatment without having to wait for a doctor's order.

"Nurses at SGH's stroke unit received training to understand the dangers of VTE and the importance of the compression device. Medical Informatics also played a role in the project's success, as prompts were included in the patient care management system to remind nurses to identify at-risk patients and to start them on the IPC device," said Dr Ng.

If a stroke patient has weakness in his legs and is unable to walk, he should be put on the compression device. If patients are not suitable for the device, such as those with leg fractures, the nurses will highlight this to

the doctors and other preventive measures will be considered.

Now, because of the project, 85 per cent of suitable patients at SGH's stroke unit are placed on the IPC device, compared to just 15 per cent previously. This has resulted in a reduction in the number of stroke patients who suffer from VTE — from one to two per month before the project to one in nine months. The team was recognised for their achievement at the Ministry of Health's Value Driven Care Conference 2019.

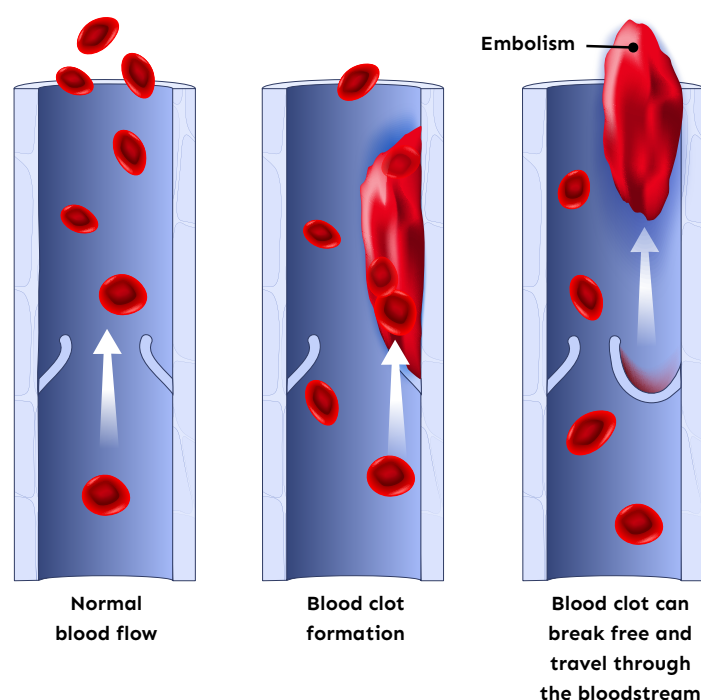
The project can also be replicated at other stroke units to keep patients safe from VTE. Dr Ng has shared details of the project with several other healthcare facilities so that more patients and families can avoid the pain and grief caused by VTE.

Venous Thromboembolism (VTE): what is it?

VTE = DVT or Pulmonary Embolism

DEEP VEIN THROMBOSIS (DVT)

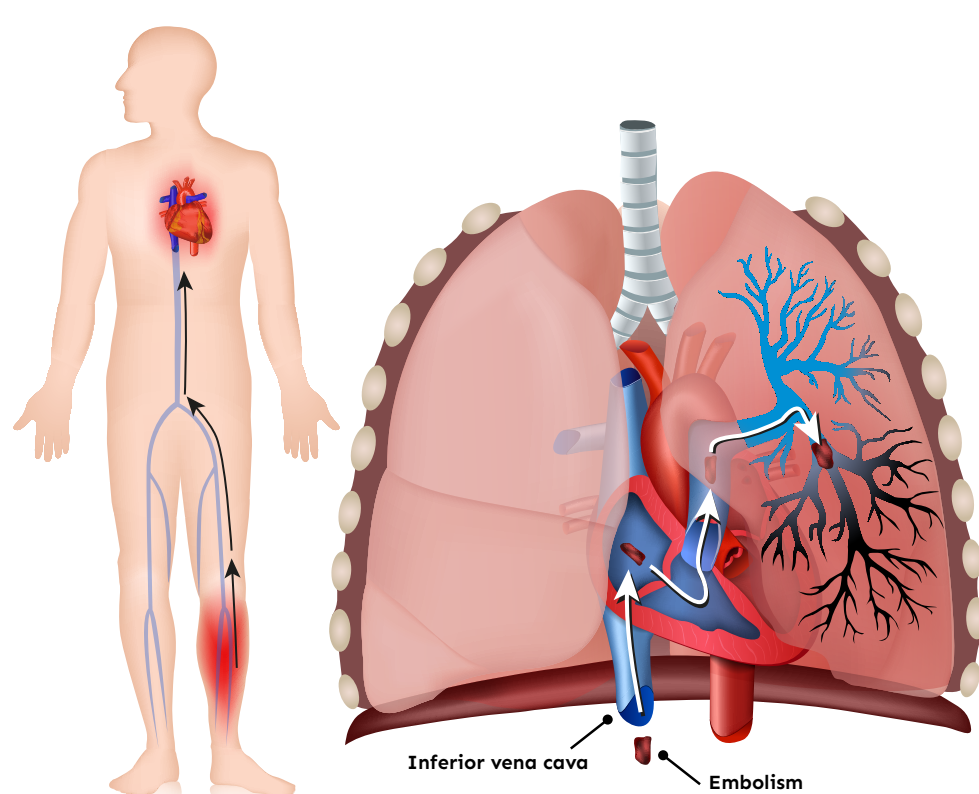
A blood clot forms in a vein deep in the body, mostly occurring in the lower leg or thigh. This clot may interfere with circulation and break off.



PULMONARY EMBOLISM

This occurs when part of the blood clot breaks free, travels through the blood stream, and lodges in the lungs, where it can cause severe damage and even death.

A pulmonary embolism can be difficult to detect because it sometimes has no warning signs. Symptoms that can occur include chest pain when taking deep breaths, rapid pulse, fainting, shortness of breath, and coughing up blood. Blood clots that remain lodged in the leg can result in pain and swelling.





»» It is important to identify one's triggers for anger and manage the physiological responses to those feelings, said Psychologist Kevin Roy Beck.

Near boiling point

Anger is an emotional state ranging from mild irritation to intense fury and rage. We all get frustrated sometimes, but what happens when anger gets out of control?

by Melissa De Silva

Speeding cars weaving in and out of traffic on congested expressways. Colleagues playing music or having a loud conversation on speakerphone while others are trying to work. People packing closely in a queue despite social distancing orders.

Some get irritated by these daily inconveniences, but will grit their teeth and move on. Others, however, may just snap — rev their engines and crash into the cars in front; shout at their inconsiderate colleagues; or push and berate the people behind them in a queue.

Most people probably fall into the first category, but for a minority, their anger tips into rage — or uncontrollable, impulsive anger. Some may say that the size of the second group may be increasing as the stresses of modern life, especially in a large city, take their toll on people's emotions.

"Rage is an extreme expression of anger, especially when the person is not able to handle their anger in a constructive manner. Rage encompasses a mix of other emotions, such as fear, desperation, and panic," said Mr Kevin Roy Beck, Principal Psychologist, Department of Psychology, Singapore General Hospital (SGH).

Such outbursts of anger or fits of rage are not acceptable whether at home, workplace, or in public, said Mr Beck. Anger does have one positive in that it can be a signal that action needs to be taken to make something right or to correct a perceived wrong.

Ways to cope

If someone keeps losing their temper, they need to find out what stirs up anger in them. "The triggers are quite individual as what irritates me may not irritate you. For instance, someone may not feel irritated in a packed MRT train, but put that same person there for eight hours and the response would likely be quite different," Mr Beck said.

Keeping an anger log by jotting down thoughts when feeling angry can help a person recognise the triggers and how to deal with them. "When you are reasonably calm, take some time to examine recent events when your anger flared. Jot the incidents down," said Mr Beck. Instead of merely reliving the event, look for what triggered the anger and the effects it had, he added.

Physiological responses, such as an increased breathing rate, a pumping heart or a racing pulse, can be early warning signals of

anger building up. When that happens, take a few minutes to calm down before reacting — count to 10 or take deep breaths.

While it is easy to tell people not to let anger build up, suppressing those feelings is not such a good idea either. They can end up with another problem.

"Anger turned inward is one definition of depression," said Mr Beck, adding that it may be preferable in some instances to lose one's temper and quickly calm down. In the main, however, losing one's temper repeatedly on the false perception that it is better to get those feelings off one's chest only serves to reinforce this negative and destructive behaviour.

The thing to do is not to let anger build, but to talk about the problems in a calm and rational manner, or to analyse what is driving those feelings. If a person has worked out what the triggers are but is unable to accept the situation or environment, then he or she needs to consider a change of environment, said Mr Beck.



Photo: Vernon Wong

Diffusing anger

• Exercise

Physical activity not only provides an outlet for emotions, but also has the added advantage of producing calming endorphins.

• Take time out

Take a few minutes to calm down before reacting to a situation. Count to 10 and take deep breaths, or walk away to defuse feelings of anger and gain a more balanced perspective.

• Don't hold a grudge

Forgive and forget, and focus on moving forward.

Sniff! Sniff!

COVID-19 is not the only cause of anosmia, or an inability to smell. A sizeable number of people suffer from the disorder, which can also affect taste.

by Clara Chee

The COVID-19 outbreak highlighted an unusual symptom for about a third of patients — a loss of the sense of smell. But the disorder is neither new nor specific to COVID-19.

Between 3 and 20 per cent of people around the world are believed to suffer from the disorder, although it is not known how many in Singapore have the problem. The disorder, which can also affect taste, can be temporary or permanent, depending on the cause. Causes include viral infections, injuries of the smell and taste nerves, and medications.

"In general, viruses can affect the nerves controlling smell and taste, and cause these disturbances," said Dr Neville Teo, Consultant, Department of Otorhinolaryngology – Head and Neck Surgery, Singapore General Hospital (SGH).

Preliminary data from SGH suggests that patients with COVID-19 infection have a higher chance of suffering from smell and taste disturbances than patients with other viral respiratory illnesses. However, the exact reason for this is still uncertain. Of the 870 SGH patients with COVID-19 symptoms seen between 26 March and 10 April 2020, 5 per cent had smell and taste dysfunction at admission. Of the 154 patients confirmed with the virus later, 23 per cent had the disorder.

Some COVID-19 patients have reportedly lost their sense of smell completely (known as anosmia) or partially (hyposmia), while others developed an altered sense of smell. In the latter, the person might smell something burning when nothing around is on fire. So far, the dysfunction among COVID-19 patients appears to be temporary for most, but longer-term data are necessary to confirm this, said Dr Teo.

In non-COVID-19 patients, anosmia appears to be more common among older people, Dr Teo added. No specific data exist for Singapore, but population studies for the US show that about half of those aged between 65 and 80 years have a reduced sense of smell, with the number increasing to three-quarters in those above the age of 80.

Older people tend to be more at risk because as people age, changes in mucus secretions and the lining of the nose occur. The size and number of smell receptors in the nose and brain also shrink with age, contributing to the greater possibility of the disorder occurring.

Viral infections, diseases affecting the nose and sinuses (such as allergic rhinitis or sinusitis), head injury, and nerve disorders (such as Parkinson's disease) can also cause the disorder. In some cases, no cause is found, Dr Teo said.

The disorder can be reversed when the underlying cause, such as an infection, is treated. A complete recovery may take weeks or months. "For the loss of smell associated with an underlying disease in the nose and sinuses, treatment of the disease can help patients regain their sense of smell," he added.

In cases of significant head injury, or where the smell nerve fibres were destroyed by tumours or surgery, the loss of smell is usually permanent. Medicines, ranging from antibiotics and antihypertensive medications to chemotherapy drugs, can also affect smell and taste. "If starting a new medication coincides with the onset of the smell disturbance, the drug may be the cause."

Anosmia, in any form or severity, is not just an inconvenience. "The main serious complication associated with a loss of smell is that one is not able to detect noxious fumes in the environment. This may be a hazard at home if the gas stove is left on unknowingly. For patients with a complete loss of smell, this is something to be cautious of," said Dr Teo.

With a loss of smell and taste considered a COVID-19 symptom, Dr Teo advises anyone experiencing the disorder to seek treatment at polyclinics or private clinics, based on the latest guidelines available on sgcovidcheck.gov.sg.





»»» Reduced outdoor time and increased indoor screen time due to COVID-19 can be detrimental to myopia control, said Dr Wong Chee Wai.

increases with age and the severity of myopia.

"People who are short-sighted also tend to develop cataracts at an earlier age and may require cataract surgery, which further increases their lifetime risk of developing retinal detachment," said Dr Wong.

While spectacles, contact lenses and Lasik surgery can give good vision to people with myopia, they do not alter the abnormal elongated shape of the myopic eye.

"Over time, this elongated shape of the eyeball imposes biomechanical stress on the internal structures of the eye, including the retina and optic nerve head. This can lead to various retinal and optic nerve complications associated with high myopia," he said.

Don't turn a blind eye to screen time

Increased screen time contributes to the risk of myopia, which can lead to sight-threatening complications.

by Eveline Gan

Building healthy habits for young eyes



Here are some ways that parents can help their children cultivate healthy habits for the use of digital devices.

1 Do a digital detox. Restrict the total screen time spent per day or per session.

2 Supervise the consumption of digital content to ensure that the time spent on devices is maximised for positive learning experiences. Guiding the child improves his or her ability to effectively process and interpret digital content, thereby decreasing the overall time spent online.

3 Schedule allocated time for specific activities. This helps set boundaries on when and where digital devices can be used while building routine and discipline.

4 Parents should be role models by reducing their own recreational digital device usage. They can engage children in offline playtime and non-digital activities, such as arts and craft or board games.

Limit screen time, take regular eye breaks, and spend some time outdoors every day.

Most of us may be familiar with these good eye care habits that can help prevent myopia, or nearsightedness, which affects more than four in five young adults in Singapore.

However, adhering to these ideal practices may be easier said than done due to lifestyle changes as a result of the COVID-19 pandemic.

"Shifts towards working from home, teleconferencing and home-based learning have inevitably resulted in an increase in exposure to digital devices and a corresponding reduction in outdoor activities for all," said Dr Wong Chee Wai, Consultant, Surgical Retina Department, Singapore National Eye Centre (SNEC).

For eye experts like Dr Wong, the increased screen time and reduced outdoor activities are worrying trends that do not bode well for myopia control.

"This is an area of particular concern for children. We know that spending time outdoors can prevent myopia onset and progression, but some of their recreational outdoor time may have been substituted with indoor screen time," said Dr Wong.

For the elderly, increase in screen time may also imply a more sedentary lifestyle, which can lead to undesirable health consequences, including developing conditions such

as cardiovascular disease or diabetes. These chronic conditions can have an indirect and negative impact on eye health, he said.

Not just blurry vision

Singapore's myopia rate is among the highest in the world, affecting 65 per cent of children by 12 years old and 83 per cent of young adults. About one in 10 have high myopia, which is defined as myopia of 500 degrees or more in each eye.

There is a misconception that myopia merely leads to blurred vision that can be corrected using optical aids, such as spectacles and contact lenses. In reality, it can lead to higher risk of eye complications later in life, including conditions like retinal detachment and myopic macular degeneration, which can lead to vision loss.

In Singapore, SNEC found that the prevalence of myopic macular degeneration was 7.7 per cent among low to moderate myopic individuals and 28.7 per cent among highly myopic individuals. In general, the risk of these conditions

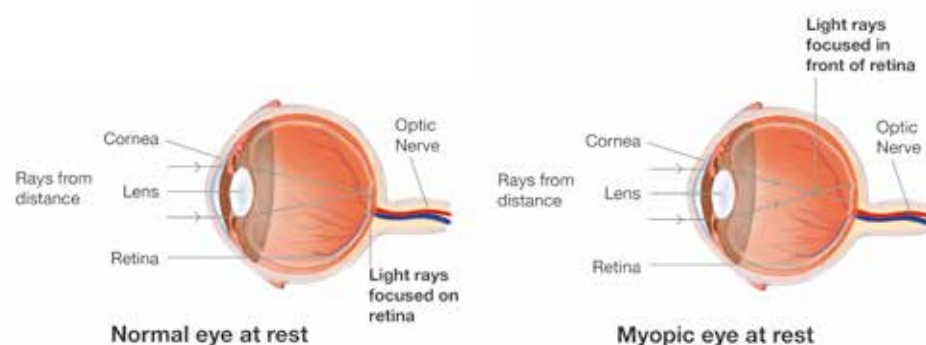
Early intervention

There are several intervention methods to slow down myopia progression in children, such as low-dose atropine eyedrops, orthokeratology lenses, and multizone soft contact lenses.

The optimal choice of treatment depends on the child's age, severity of myopia, and specific needs. Therefore, a thorough examination and discussion of benefits and risks of each treatment with a qualified eyecare professional is of paramount importance.

As myopia progression in adulthood is unusual, the worsening of vision in an adult with myopia should never be attributed simply to an increase in myopia without a comprehensive assessment by an eye specialist.

Dr Wong advises that adults should have their eyes screened for common complications associated with high myopia and be aware of the visual symptoms related to these conditions. Early detection is vital for good treatment outcomes.



»»» Myopia arises from excessive growth and elongation of the eyeball, resulting in light rays from distant objects focusing in front of the retina instead of on the retina, thereby making these objects appear blurry.

Fish Oriental Style

(4 servings)



Preparation time: 10 minutes



Cooking time: 10 minutes

Ingredients

- 500g seabass fillet, cut into 4 pieces
- 5g ginger, thinly sliced

FOR SEASONING

- 3 tsp light soy sauce
- 3 tsp sesame oil
- 3 tsp Chinese rice wine

Method

1. Combine seasoning ingredients, mix well, and pour over fish.
2. Place ginger on top of fish.
3. Steam for 8-10 min.
4. Serve hot.

Estimated nutrient content (per serving)

- Energy 150kcal
- Carbohydrate 1g
- Protein 23g
- Fat 6g
- Sodium 359mg
- Cholesterol 51mg



BLENDED DIET FOR PATIENTS WITH SWALLOWING DIFFICULTIES

Put one serving of fish (approximately 100g) into blender. Add 50-70ml of gravy or water, and blend until the consistency required or as directed by speech therapist.



Adapted from *More than Mash*, a publication by Singapore General Hospital



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Asthma in adults



If I get asthma as an adult, does it mean I will get other allergies like rhinitis and eczema? What are the triggers of asthma in adults and how can I avoid them?

Having asthma does not necessarily mean you will get other allergic manifestations, such as allergic rhinitis. However, studies do indicate that allergic rhinitis is very common in asthma patients — up to 80 per cent of these patients may have rhinitis, too.

There can be many potential asthma triggers but an individual's response to these potential triggers may be different. For example, dust mites may trigger symptoms in one person but not in another. Commonly identified triggers and allergens include:

- dust mites, mould, pet fur, cockroaches, pollen
- latex, flour, enzymes, wood dust, chemicals
- smoke from both active and passive smoking
- environmental pollution and cleaning products
- medications (such as aspirin) and non-steroidal anti-inflammatory drugs (such as ibuprofen)
- weather changes, cold temperature, humidity
- exercise
- food additives, such as sulphites

DR TAY TUNN REN

Consultant, Department of Respiratory and Critical Care Medicine, Changi General Hospital



Can snoring be cured?



Can surgery fix the problem of snoring, and if so, how intensive is it, and is it a permanent solution?



Dental splints, palatal implants, or surgery can treat snoring. The problem of snoring is considered a mild version of obstructive sleep apnea (OSA), and therefore surgical procedures used to treat it are also milder. A proper examination by a trained physician is required to identify the area of the airway where the restriction lies, which may be the nasal cavity, soft palate, tonsils, or tongue. Accurately identifying the affected area will ensure the best chance of a long-term solution. However, it is also important to note that age and weight are factors that may cause snoring to recur.

DR ERIC LYE

Visiting Specialist, Oral & Maxillofacial Surgery, National Dental Centre Singapore

Monitoring your sleep



I want to know how well I am sleeping, and am thinking of getting a sleep tracker. How do they work and are they useful?



Sleep trackers measure the wearer's movements with the use of accelerometers built into these devices. Algorithms programmed into sleep trackers interpret the amount and interval of the movements in an attempt to determine whether sleep is occurring. The algorithms vary from manufacturer to manufacturer, which is why you may obtain differing results from different brands of trackers.

Some studies have shown that fitness trackers underestimate sleep while other studies show that sleep is overestimated. For instance, someone with insomnia may be lying in bed without moving, which the tracker mistakenly measures as sleep. On the other hand, a tracker may measure someone as awake when he is actually asleep but is restless in bed. This means that sleep trackers are generally useful for determining the amount of time spent lying in bed but may have errors in determining the actual amount of time spent asleep.

The most comprehensive way of evaluating sleep is by a sleep study, otherwise known as polysomnography. It involves an overnight stay during which multiple parameters, such as brain wave activity, eye movement, muscle tone, heart rhythm, blood oxygen levels and breathing patterns, are monitored by a specially trained technologist. Whether or not sleep is occurring and whether it is light or deep are determined by carefully studying this recorded brainwave activity for characteristic patterns, together with the physiological factors measured.

DR SHAUN LOH

Consultant, Otorhinolaryngology – Head & Neck Surgery, Singapore General Hospital

DID YOU KNOW...

... **that** between 2016 and end-June 2020, Singapore General Hospital (SGH) recorded 415 cases of various forms of abuse? They include physical and verbal abuse, as well as molest of staff — mostly nurses — by visitors and patients.

SGH recorded 66 cases in 2016, 69 in 2017, 89 in 2018, 107 in 2019, and 84 in the first half of 2020. Of the 4.5 year total, 246 cases were of physical abuse, 142 verbal, and 27 outrage of modesty.

It is worrying that such harassment has been on the rise. Among the reasons cited for harassing staff is the frustration that visitors and patients face while waiting to see a doctor or therapist, for scans, or for their medicines.

SGH is an acute hospital that sees patients with a broad range of conditions, including complex cases that need urgent intervention. Often, such patients have to be attended to before those with appointments. Some consultations, too, may take longer than usual because of the complexities of the condition.

Visitors and patients can provide feedback about service levels to SGH's Office of Patient Experience. The hospital will not tolerate any form of abuse towards staff who are working hard to provide patients with the care they need. They deserve to be treated with kindness and respect, and have a safe environment to work in to continue giving their best.

If patients or visitors display behaviour that the hospital considers unacceptable, security staff can be called upon to moderate the incident or to report it to the police.



... **that** remote-controlled robots called "Temi" have been deployed at Sengkang Community Hospital, Bright Vision Hospital, and previously at the Community Care Facility at Singapore Expo to enable healthcare workers to care for COVID-19 patients while keeping safe?

Temi offers a platform for teleconsultations where doctors and nurses can see and speak with patients in real time through a screen; telepharmacy where pharmacists advise patients on medication use virtually; and telecounselling to support patients in their recovery journey. Patients can even use Temi's music and dance functions to engage in physical activities, such as light stretching exercises and simple dance routines, to keep engaged and active, and enliven the mood in the wards.



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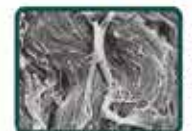
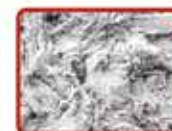
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There are many brands of ivy leaves products in the market and they are not well regulated. How do you know which brand is effective and safe?

Here are some questions you can ask:

1. Is it clinically proven to be effective?
2. Is it clinically proven to be safe?
3. Is it recognised internationally or sold in just a few countries?
4. Is it reliable, i.e. has it been in the market for many years?

Prospan[®] has been proven effective and safe in numerous clinical studies with over 65,000 patients¹ comprising infants and adults from 0 to 98 years old. It is a trusted brand internationally for more than 68 years and sold worldwide in more than 100 countries.

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GLUCOSAMINE: Not effective or not the right BRAND of glucosamine?

Before buying a glucosamine brand,
ask yourself these questions:

1. How many clinical studies have proven that the brand works for painful joint conditions?
2. How many clinical studies have shown that the brand does not work?
3. How many long term, large-scale studies were conducted using the brand to prove its safety for long-term use?

For Viartil-S:

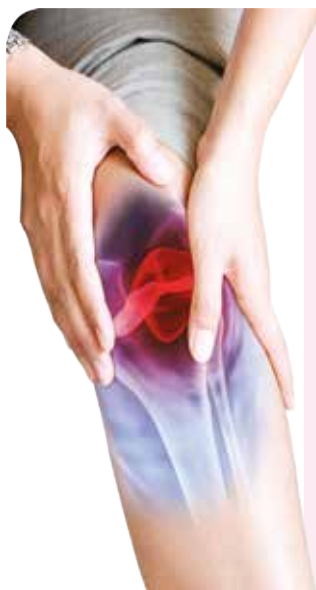
1. There are more than **100** clinical studies and all the studies have proven that Viartil-S works for painful joint condition.
2. No clinical studies have shown that Viartil-S does not work.
3. There are long-term studies using Viartil-S involving over 7000 patients proving its safety for long-term use. These include one 2-year, one 2.5-year & two 3-year studies with an 8-year follow-up study which has also shown that **Viartil-S reduces the risk of Total Knee Replacement surgery by 57%.**

What about the glucosamine brand that you are taking?

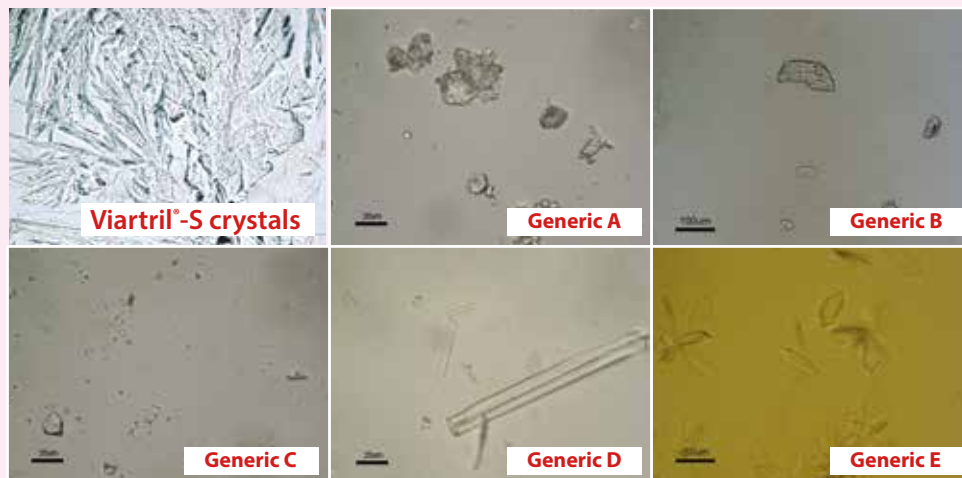
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In Singapore, glucosamine products are sold to public without the need for registration & approval by HSA. This means that even simple checks on purity are not required. So, the safety and efficacy of a brand can only be confirmed by lab & clinical studies.



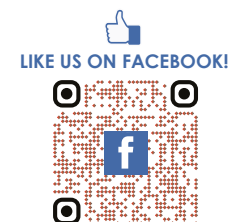
The microscopic structure of Viartil-S is different from generic glucosamine:



1. Dario Gregori et al. JAMA. 2018;320(24):2564-2579 2. Olivier Bruyère et al. Seminars in Arthritis and Rheumatism 44(2014) 253-263 3. Bruyère O, Altman RD, Reginster JY. Semin Arthritis Rheum. 2016 Feb;45(4 Suppl):S12-7.



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