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The best chance at a successful pregnancy is to start planning for a child early

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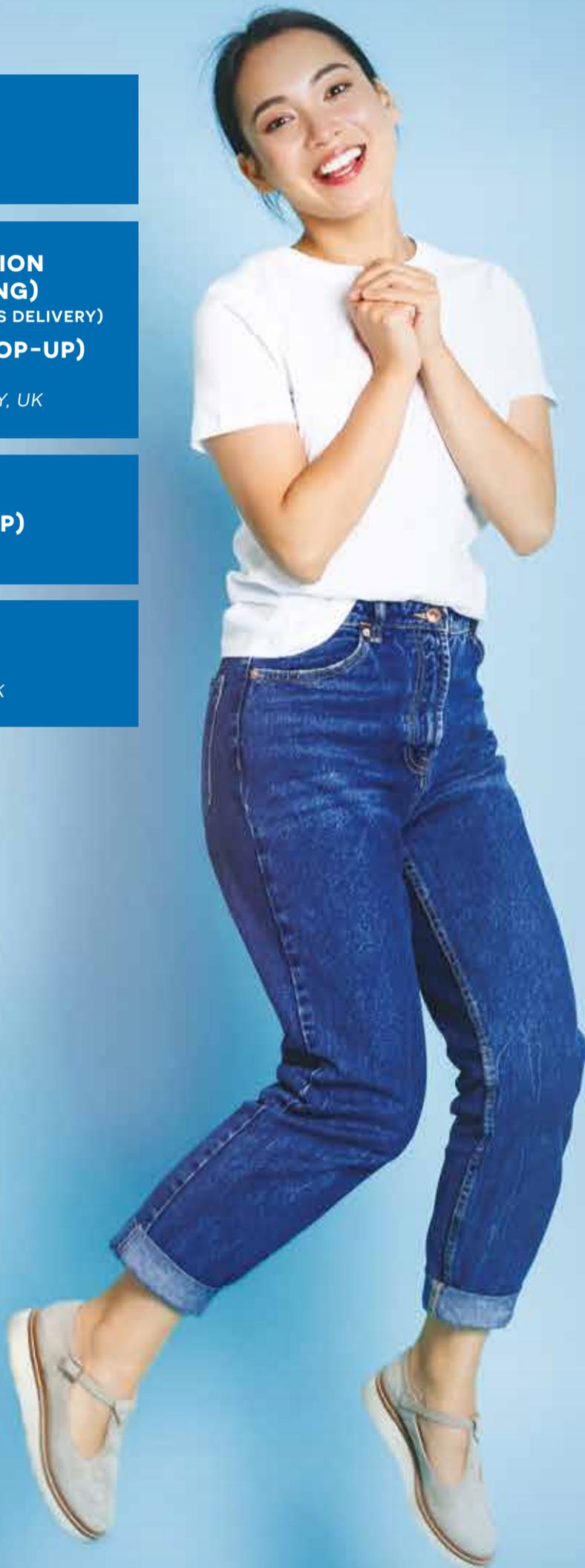
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**MDIS**

»» At CARE, Senior Staff Nurse Ee Che Eng shows how to inject fertility hormones and counsels couples about fertility treatments.



# Don't wait, or it may be too late

Getting pregnant is not as easy as many people think, and artificial means of conception does not guarantee success. An SGH-KKH study is aiming to find out if heightening awareness of conception issues will encourage couples to start a family earlier than later.

by Sol E Solomon

A typical Singaporean couple, Celeste and Terry (not their real names), married when they were both 29. A year after, they began trying for a baby but found it more difficult than they had envisaged. They then turned to various fertility therapies, including in-vitro fertilisation (IVF), but found they had poor quality eggs and other difficulties.

It was only in 2021 — three years after they began trying, and on her third IVF cycle — that Celeste became pregnant. The couple was fortunate.

"Some couples stay childless despite multiple cycles of assisted reproductive technology, especially if they are over 40 years of age and the success rate is very low," said Associate Professor Yu Su Ling, Senior Consultant, Department

Some couples stay childless despite multiple cycles of assisted reproductive technology, especially if they are over 40 years of age and the success rate is very low.

Associate Professor Yu Su Ling  
Senior Consultant, Department of Obstetrics and Gynaecology, Singapore General Hospital

of Obstetrics and Gynaecology, Singapore General Hospital (SGH).

Dr Chua Ka Hee, Consultant, Department of Reproductive Medicine, KK Women's and Children's Hospital (KKH), added that as in many developed economies, couples in Singapore are putting off childbearing till later for career building and other reasons.

"By the time the couple comes for treatment, it is sometimes a bit too late. Age-related decline is irreversible," said Dr Chua.

Reproductive technology includes methods like oral medications and hormone injections to promote growth or maturation of the eggs in women, and introducing sperm into the womb during ovulation.

With experiences like Celeste and Terry's, the doctors formed a team to study how to help Singapore couples better plan for

a family and with less heartache. Backed by the Prime Minister's Office, the SGH-KKH study wants to determine if a better understanding of fertility issues and fertility treatments might influence them in their decision-making.

Known as *The Effect of Fertility Health Awareness Strategies on Fertility Knowledge and Childbearing in Young Married Couples*, or FertStart, the study also aims to understand young couples' attitudes and impediments to starting a family early. For instance, some couples have reportedly pushed back plans to start a family amid greater uncertainties brought on by the COVID-19 pandemic.

But above all, said Prof Yu, who is also Director of SGH's Centre for Assisted Reproduction (CARE), "we need to let them know that

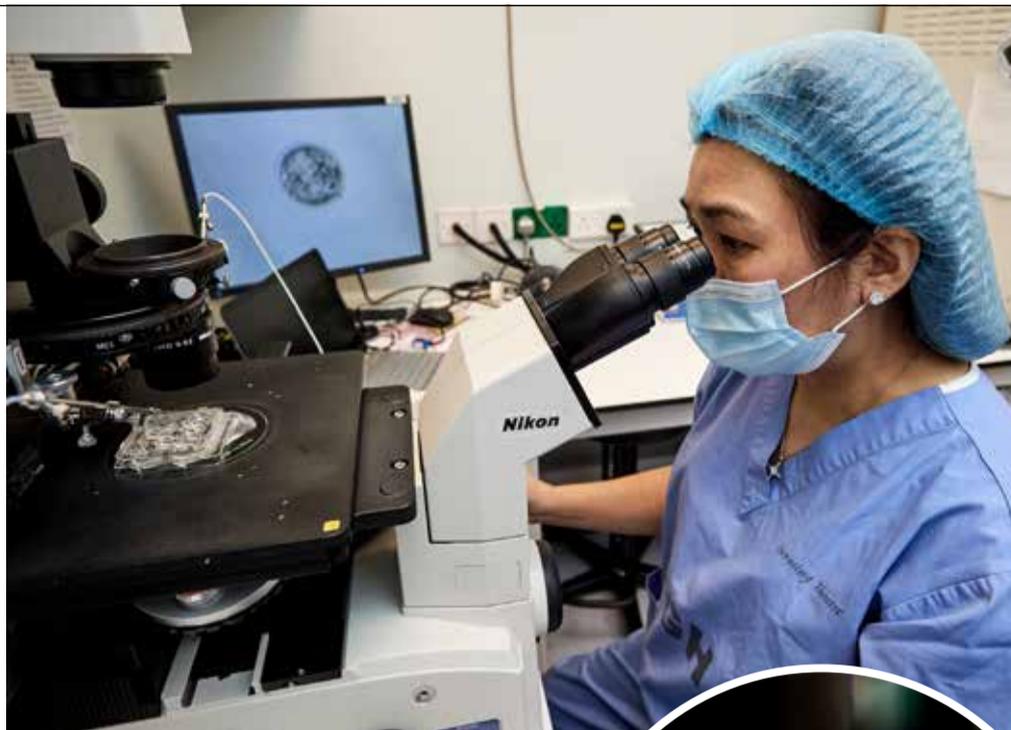
## Who can take part in FertStart

- Married couples who are Singapore citizens or permanent residents
- The wife is aged between 25 and 34 years, and is not currently pregnant
- They have no children (including children from previous marriages)
- They have not undergone fertility treatment before
- They have no history of ectopic pregnancies
- They are able to complete a survey in English





»»» Senior Principal Sonographer Vijeyaletchimi Nadasan performs a procedure called follicle tracking, where she measures and counts the follicles (ovary sacs filled with immature eggs) until they mature and are ready to be retrieved.



»»» During the IVF procedure, Senior Principal Embryologist Amy Lee mixes mature eggs with sperm in the laboratory. After the eggs are fertilised (a sperm penetrates the egg, which then starts dividing), the developing embryos are placed in the uterus. Sometimes, assisted hatching or a small crack is first made in the outer embryo shell (above and right, an embryo culture dish). The embryos, eggs and sperm can be frozen and stored in a liquid nitrogen tank (cover picture).



## Fertility numbers to consider

- ▶ **1 in 7 couples** is affected by infertility
- ▶ **80% of couples** having regular unprotected sex should conceive within one year.  
For the **remaining 20%**, about half will do so in the second year
- ▶ In **1/3 of couples**, the male partner is the primary cause of subfertility
- ▶ **1%-2% of men** have no sperm in their ejaculate

## Common causes of infertility

Damaged or blocked fallopian tubes, polycystic ovary syndrome, endometriosis, fibroids and polyps, early menopause, and advanced maternal age (35 years or older) are some common causes of infertility in women. Male fertility, meanwhile, can be affected by low or no sperm count, or poor sperm motility (movement).

## Increasing pregnancy chances

Ovulation usually occurs 14 days before menstruation starts, and is the most fertile day of the cycle. If the menstrual cycle is 26 days, ovulation is on day 12.

IVF is not recommended if the body mass index is more than 35 or less than 19, as the chance of success is significantly lower with higher risks. Being overweight or underweight has a dramatic effect on female fertility, with ovulation periods being irregular or absent.



## Improving sperm count and quality

- Quit smoking, reduce alcohol intake, and avoid recreational drugs
- Avoid hot baths
- Improve general fitness

It may take three months for the sperm count and sperm quality to improve after lifestyle changes.



infertility increases with age for both men and women”.

FertStart has begun enrolling young couples since the start of 2021 through SingHealth polyclinics and at both hospitals.

Participants are randomly assigned to one of three groups. One group undergoes fertility health screening, a doctor's consultation, and standard reproductive counselling by a trained nurse. Participants in a second group have to download an educational brochure and watch an online video about other couples discussing their fertility issues. They will then complete a short survey, which includes recommended actions. These activities do not require the participants to visit the hospital.

“Some of the couples who watch the video may have the

same difficulties or may not have been aware of the infertility causes mentioned. Through this exercise, they may try to start pregnancy early,” said Dr Chua.

The last group will do and receive nothing. As the control group, its findings will be used for comparison in areas such as the effectiveness of the interventions given to the other groups. Four months after, participants in the second and third groups will receive an email to remind them of the key facts about the drop in fertility with age. At the six-month mark, they will receive another email, a follow-up survey; and after about seven months, selected couples will undergo a feedback interview with the researchers. The study is expected to run for about three years.

By the time the couple comes for treatment, it is sometimes a bit too late. Age-related decline is irreversible.



Dr Chua Ka Hee  
Consultant, Department of Reproductive Medicine,  
KK Women's and Children's Hospital



▶▶▶ Clinical Assistant Professor Troy Puar and Dr Daryl Hee at the Shimadzu-CGH Clinomics Centre, a new clinical laboratory equipped with mass spectrometry technology.

▶▶▶ Dr Hee inserting a blood sample into the mass spectrometer, which will determine the type of hypertension a patient has.



# A personalised approach to hypertension

Tests by a new clinical laboratory will improve the accuracy of treatment and enhance care for patients with hypertension.

by Thava Rani

Patients with hypertension can look forward to receiving more precise and targeted treatment from the get-go, with the opening of the Shimadzu-CGH Clinomics Centre (SC<sup>3</sup>), a partnership between Changi General Hospital (CGH) and Japanese technology firm Shimadzu (Asia Pacific).

Hypertension, or high blood pressure, is a relatively common condition here — one in four adult Singaporeans has it — but not much data is available on the type of hypertension they may have.

Some patients suffer from a type of hypertension that is caused by excessive tightening of the blood vessels, while others may develop this condition due to an excess in salt and blood volumes. Up to a fifth of patients may have a curable form known as primary aldosteronism, or Conn's syndrome, which is caused by an over-secretion of the hormone aldosterone.

"Medicines correct high blood pressure either by relaxing the blood vessels, or by removing excess salt from our body. As such, identifying the type of hypertension will enable us to deliver more precise and

personalised medicine," said Clinical Assistant Professor Troy Puar, Consultant, Department of Endocrinology, CGH.

A satellite laboratory of CGH, the SC<sup>3</sup> is equipped with mass spectrometry technology that will enable easy and quick identification of hypertension types using liquid chromatography upon validation. With just a small sample of blood, the laboratory will be able to precisely measure levels of the renin and aldosterone hormones, which will determine the spectrum of hypertension a patient has.

Currently, such accurate analysis can only be done by sending patients' blood samples to laboratories with mass spectrometry capabilities in the United States. This is costly, and takes up to two weeks for the results to be available.

Local laboratories mostly use immunoassay testing to measure vitamins, hormones and antibodies, but these do not provide the accuracy needed for renin and aldosterone hormones.

"Different hormones often share similar structures, and immunoassays testing may give false results because of this.



▶▶▶ The capabilities of the new lab will enable clinicians like Dr Puar to deliver more precise and personalised medicine for patients with hypertension.



▶▶▶ With the SC<sup>3</sup>, patients do not need to draw blood multiple times, says Dr Hee.

Particularly for aldosterone that is in low concentration, this can be a problem. Measurements of aldosterone with mass spectrometry gives us the certainty we need to treat patients confidently," said Dr Puar.

With SC<sup>3</sup> set up in Singapore, results will take only about two days to be ready. The mass spectrometer directly measures the test compound, which is very specific and is able to give accurate results.

"Doctors will be able to prescribe the most appropriate medication personalised for hypertension patients from the start, preventing the disease from worsening," said Dr Puar.

"The new laboratory can also test for multiple compounds using the same sample. This means the patient does not need to undergo multiple blood-drawing procedures, thereby improving the patient experience," added Dr Daryl Hee, Senior Manager, CGH, who is in charge of SC<sup>3</sup>.

The lab will also be used to measure the concentrations of the various hypertension medications from the patient's urine samples.

As there is no other marker to indicate how well controlled a patient's blood pressure is over a period, the identification of medications using mass spectrometry will give doctors a good indication as to whether patients are adhering to their medication schedule.

"There are instances where some patients' blood pressure may still not be controlled even after medication. Often, these patients would be referred to specialists, who may then order further tests to investigate the issue. The urine test will be useful in identifying patients who may not be complying with their medication regimes," said Dr Puar.

The laboratory is also working towards processing samples from the region and for other chronic diseases in future. It hopes to serve as a regional referral centre in Asia Pacific for developing mass spectrometry solutions.

# Pillar of support

Providing social and emotional support, the Liver and Pancreas Support Group helps patients overcome pain and anguish to find hope and comfort.

by Annie Tan

**M**r James Lau has lived with primary liver cancer since 1999, undergoing numerous surgeries and treatments as his cancer returned more than 10 times in the past 22 years.

It has been a difficult and protracted battle. Mr Lau, like other cancer patients, draws on the strength and support of friends and relatives to live with what has been essentially a life-changing disease, and lengthy treatments that include major surgery, and chemo and radio therapies.

"Cancer assaults the body. It intrudes into the patient's daily life. Cancer patients experience significant pain, stress and anguish. They feel they have lost control over their lives," said Ms Julianah Bee, Senior Programme Coordinator, Department of Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital (SGH).

Cancer wears down patients mentally and physically, and liver cancer is one of the deadliest and commonest among men.

According to the Singapore Cancer Registry's 2014-2018 report, issued in 2021, a quarter of male liver cancer patients can expect to live beyond five years.

To support these patients, Ms Bee set up in 2017 the Liver and Pancreas Support Group (LPSG) with Associate Professor Peter Mack, Senior Consultant, Department of Hepato-pancreato-biliary and Transplant Surgery, SGH, and five other colleagues.

Members, including liver cancer, post-liver transplant and chronic pancreatitis patients, meet regularly to discuss and learn from each other how to manage their illnesses. The LPSG also organises talks on diverse topics, such as chemotherapy, traditional Chinese medicine, mindfulness, and caregiver stress. Before the COVID-19 pandemic, the LPSG met for activities like yoga, music therapy, healthy cooking demonstrations, and art jams to provide patients with psychosocial support.

When diagnosed with a potentially deadly illness like liver cancer, many patients feel helpless

and despondent. To help them accept their condition, a mask-painting workshop called *Self-Rediscovery* was organised by Prof Mack.

"Patients' cancer journey often involves a process of developing a new identity — including re-evaluating hopes and plans for the present and future — which can influence their well-being and relationships with the care provider," said Ms Bee.

The talks and workshops, and above all, the bonding and support that members provide each other through their darkest days, have helped the group grow into a close-knit community of 40 patients and carers.

"The LPSG offers patients a safe place to share, and to work through their feelings and challenges. It allows them to learn from other patients who are facing similar situations," said Ms Bee, adding that patients who become socially isolated and despondent tend to do less well medically.

When Mr Lau was going for his first immunotherapy session, he was afraid and worried. But after hearing an LPSG member talk about his experience, Mr Lau felt hopeful about his future. Realising how their own experiences can encourage others, Mr Lau and other LPSG members often step forward during meetings to help others.

Even as large social gatherings are put on hold due to the pandemic, the group has stayed connected via video conferencing apps to support one another. This year, the LPSG won the 2021 Singapore Health Inspirational Support Group award for its role in ensuring patients' well-being during these trying times.

"We are not alone in our suffering," said Mr Lau. "By sharing our experiences as patients, we can help each other along in our fight against cancer."



»»» The Liver and Pancreas Support Group, led by Senior Programme Coordinator Ms Julianah Bee (fifth from left) and Associate Professor Peter Mack (extreme left, with Mr James Lau in green shirt), provides patients with a safe space to share their challenges and experiences, and the opportunity to continue leading meaningful lives through various initiatives.



»»» The group members stay connected via video conferencing apps to support one another during the pandemic.

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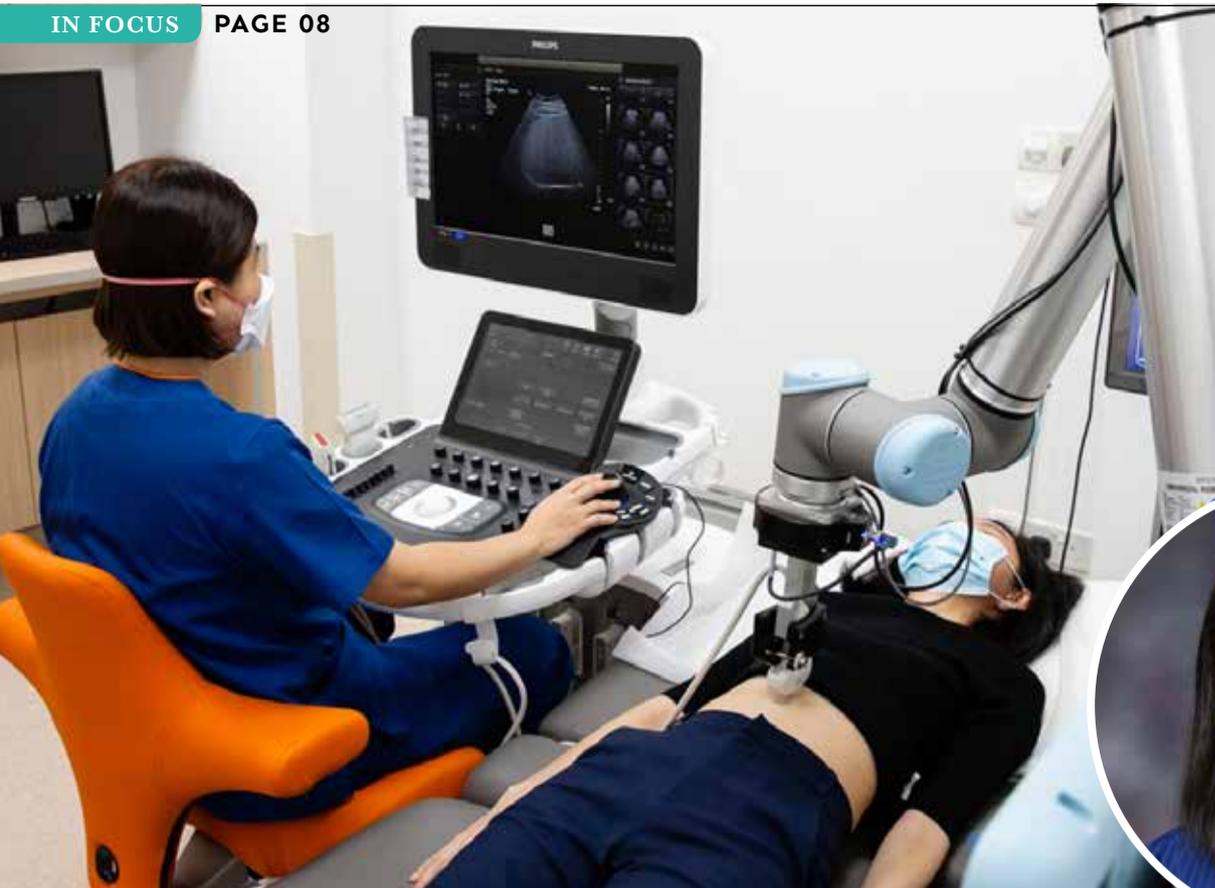
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»»» The efficiency of ROBUST in capturing diagnostic quality images is not compromised compared to conventional scans, says Professor Celia Tan (below).



»»» The robotic arm has reduced the strain on and risk of injury for radiographers like Senior Principal Radiographer Kho Ying Ying.

# Protecting radiographers from injuries

A robotic arm has been developed to lessen the strain on radiographers.

by Desmond Ng

**R**adiographers play an important role in performing medical imaging to help diagnose patients with injuries or illnesses. However, the repetitive actions needed to scan patients manually with an ultrasound probe often lead to chronic joint injuries in the radiographer's shoulder, neck and wrist, as well as back pain.

Take Ms Kho Ying Ying, Senior Principal Radiographer, Singapore General Hospital (SGH), for example. Ms Kho uses a range of ultrasound probes and different manoeuvres to obtain images of diagnostic quality to aid in patients' diagnosis. Some ultrasound examinations can be challenging — for instance, portable scans, transvaginal scans and scanning patients with high body mass index (BMI) — where she has to assume awkward postures during the scan, stretching her arm to ensure that patients and the equipment are in the right position, thereby putting herself at risk of Work-Related Musculoskeletal Disorders (WRMSDs).

The main causes of WRMSDs include awkward postures or

improper positioning during scanning, repetitive scanning motions using force, and long durations of gripping.

"After performing a series of technically challenging cases, my arm is stretched out, and I can feel the strain on my shoulder and arm," said Ms Kho.

To minimise such injuries, a team of physiotherapists and radiographers from SGH and Sengkang General Hospital (SKH) have utilised a robotic arm, which acts as the radiographer's 'arm' to hold and move the ultrasound probe when scanning patients.

Known as ROBUST (Robotic Assisted Ultrasonography System), this technology was developed with the help of robotic software engineers.

"ROBUST can lessen the strain on radiographers who previously had to hold the probe and stretch over the patients when doing the scans," said Professor Celia Tan, Senior Director (Special Projects), SingHealth, and the Principal Investigator of the project team.

"A sonographer or radiographer performing ultrasound scans would have to see about 15 patients a

day. The repetitive movements throughout the day can cause muscle injuries or WRMSDs. With ROBUST, the scan can now be done using a robotic arm holding the ultrasound probe instead," said Prof Tan.

For ultrasound radiographers like Ms Kho, her work can be less strenuous with ROBUST, as she manipulates the mouse to move the robotic arm to perform ultrasound scans for the liver, gall bladder, kidneys, spleen and pancreas over the patient's abdominal area.

By leveraging robotic technology, the team believes that they have found a modern innovative solution to the age-old problem of WRMSDs.

"The robot arm is already available commercially. It is used in other manufacturing industries for physically laborious work, such as packing and car assembly. However, this is the first time it is used in a healthcare setting," Prof Tan said.

## Reducing risks

A physiotherapist by training, Prof Tan said that the hospitals

have seen an increase in the number of ultrasound scans performed in the last few years, which puts ultrasound radiographers at a higher risk of over-exertion and injury.

In 2019, there were an average of 695 and 194 ultrasound scans performed in SGH and SKH respectively per week. This has increased by 53 and 32 scans respectively per week in 2020.

Prof Tan said that they received many positive feedback from radiographers and patients following a recent trial on the use of ROBUST at SGH and SKH.

"With ROBUST, the efficiency of capturing diagnostic quality images is not compromised in comparison to conventional scans. The radiographers also felt it was less strenuous on them to use the mouse, compared to physically stretching over the patient to hold the probe," she added.

Patients who had participated in the trial felt that the pressure exerted by the robotic arm was acceptable and they did not feel any discomfort.

Although some shared that the use of the robotic arm seemed intimidating at first, they were reassured as the radiographer was seated next to them throughout the scanning process, ensuring that the procedure is executed safely.

"Some patients still prefer the human touch when undergoing a scan, but most of them are accepting of the robotic arm," said Ms Kho. "Those who have undergone the scan with the robotic arm are willing to repeat the experience in future scans."

In addition, ROBUST can also reduce the risk of any infection exposure by ensuring safe distance between the radiographer and the patient.

## The future of ROBUST

The ROBUST study was awarded more than \$1.3 million in 2017 from the MOH Ageless Workplaces Innovation Grant under the National Innovation Challenge on Active and Confident Ageing.

The project team is currently in discussions with a local robotic solutions company to commercialise the system, and plans to roll it out in other SingHealth institutions and hospitals from 2023 onwards.

More projects are being explored to programme the robot arm to scan autonomously in the future. Such devices can lower the risk of work injuries or fatigue, and even allow senior staff to continue in this area of work.

# When the lifeline for dialysis fails

Singapore General Hospital studies new treatment option for repeated episodes of blocked dialysis access.

by Eveline Gan

**F**or patients with kidney failure, undergoing regular haemodialysis to remove waste products and excess fluid in the blood is necessary for survival. Essential to this life-saving process is an entry point to access the blood vessels. It is usually created by connecting an artery and vein using a hollow tube (called an arteriovenous, or AV, graft), or by joining an artery and vein in the arm (AV fistula).

The access is so important that it is considered a patient's "lifeline". "Once it is blocked, there is no

way the patient can do dialysis," said Associate Professor Tan Chieh Suai, Senior Consultant and Head, Department of Renal Medicine, Singapore General Hospital (SGH).

Yet, an obstructed access is a common phenomenon. A blocked dialysis access is among the most common causes of hospitalisation in patients on haemodialysis.

At SGH, approximately 1,000 procedures are carried out to unclog blocked grafts and fistulas every year. About 70 per cent of patients with a history of a blocked graft require



»»» New effective options to prevent repeated blockages of dialysis access is key to successful therapy, says Associate Professor Tan Chieh Suai.

hospitalisation to unclog the dialysis access every six months.

"Understandably, it can be frustrating for patients, as the time and costs of repeated procedures to salvage a failing graft or fistula are on top of their thrice-weekly dialysis sessions," said Prof Tan. A blocked graft or fistula typically takes around one to two hours to clear, and costs about \$4,000 to \$5,000 per treatment.

To explore more ways to keep a patient's dialysis access viable for longer, a team of SGH clinicians from the Departments of Renal Medicine, Vascular Surgery, and Vascular and Interventional Radiology looked into a new treatment option that uses an angioplasty balloon coated with sirolimus, a drug that has been used successfully to prevent repeated narrowing of the coronary artery.

## How the balloon works

The team recruited 20 patients with end-stage kidney failure with a blocked graft between October 2018 and October 2019 to evaluate the efficacy of the sirolimus-coated balloon.

The current treatment to salvage a blocked dialysis graft or fistula involves injecting clot-busting medications, known as thrombolytic agents, into the vessels to dissolve or soften the clot. The narrowed segment of the vessel, which is the root cause

of the clotting, is then widened by inserting a plain angioplasty balloon into the affected area.

With the new treatment option, the balloon is coated with sirolimus and inserted under x-ray guidance into the blood vessel.

"When the balloon is inflated, the sirolimus is applied to the narrowed segment of the blood vessel. This prevents the narrowing from recurring, hence preventing the AV fistula or graft from failing again," Prof Tan said.

Patients remain awake during the one-hour procedure performed under local anaesthesia.

## Encouraging results

Prof Tan, the senior author of this pilot study, said that "results have been encouraging", with only 50 per cent of patients who were treated with the sirolimus-coated balloon requiring a repeat procedure at six months.

The study was published in the peer-reviewed *Journal of Vascular and International Radiology* in December 2020.

SGH is currently on a one-year follow-up joint pilot study with Sengkang General Hospital and National University Hospital to determine if the sirolimus drug-coated balloon has similar efficacy in 170 patients with a failing AV fistula. According to Prof Tan, over 80 per cent of patients from this latest study did not require a repeat procedure at six months.

Prof Tan said that exploring new effective options to prevent repeated episodes of blocked dialysis access is important, as patients with kidney failure require lifelong dialysis treatment. A functioning access is key to successful therapy; without it, the consequences may be fatal.

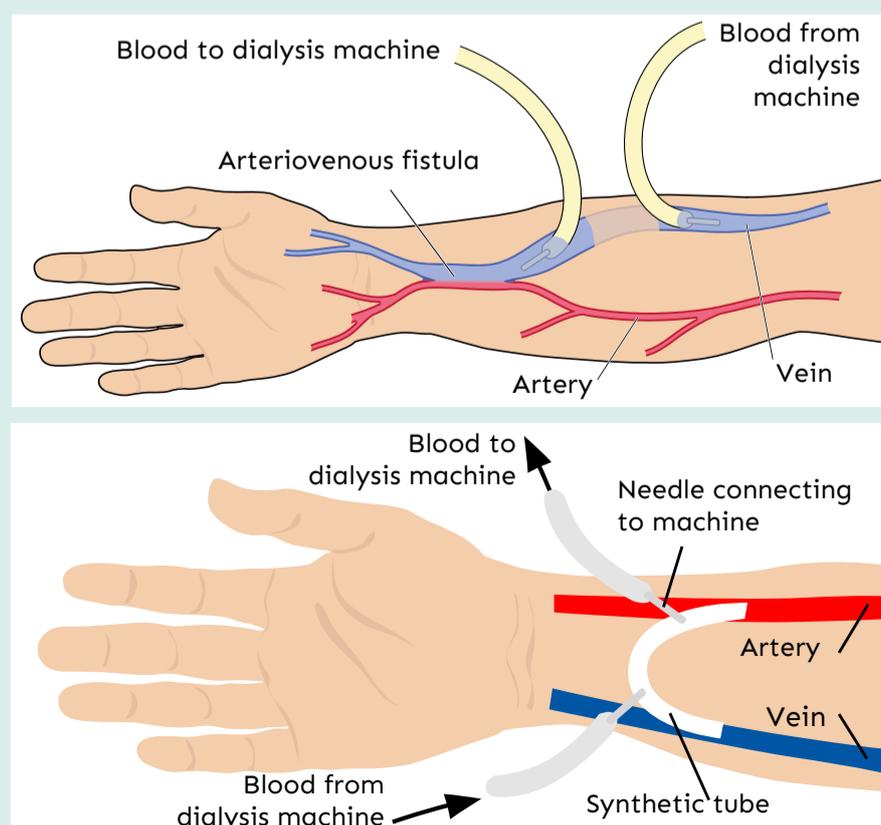
"Effective therapy also means fewer procedures and hospital admissions, less pain, and more time for other activities," he added.

## Why does dialysis access get blocked?

When there is narrowing, or stenosis, due to cell growth within the blood vessel, it slows blood flow, and increases the chance of clotting and blockage.

It is not fully understood why some patients tend to experience such blockages more frequently than others, but such episodes of clotting can be time- and cost-consuming, and even potentially life-threatening to patients who require thrice-weekly haemodialysis.

The procedure carried out to salvage a failing graft (bottom diagram) or fistula (top diagram) also comes with risks, such as vessel rupture, bleeding and infection. It is also inconvenient for the patient to undergo repeated procedure and disruption to their dialysis schedule.



# Breathing life into critically ill patients

Behind the scenes, respiratory therapists like Ms Chou Sin-Yi support patients with COVID-19 and those with breathing-related conditions to optimise their breathing efficiency.

by Eveline Gan

**M**s Chou Sin-Yi was only in her teens when the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak happened. At the time, she did not think that she would encounter another infectious disease outbreak in her lifetime, much less battle it head-on as a healthcare professional.

Now a respiratory therapist at Sengkang General Hospital (SKH), Ms Chou is among the many frontline medical professionals fighting the COVID-19 pandemic worldwide.

The 31-year-old has helped some of the most critically ill COVID-19 patients who require breathing support to use a ventilator, which delivers life-sustaining oxygen to their lungs and in the body.

Together with the healthcare team at SKH, Ms Chou manages patients in the intensive care units (ICU) and high dependency units by boosting their breathing efficiency. This includes optimising their ventilators by adjusting the settings, and administering drugs to the lungs.

Ms Chou's work also involves managing patients suffering from lung conditions that can affect breathing, such as pneumonia, bronchitis, and chronic obstructive pulmonary disease. Additionally, she assists in 'Code Blue' situations, which refer to medical emergencies like cardiac or respiratory arrest.

"Most of my patients need to be intubated. My job is to assess their condition. We make sure they feel comfortable while on the artificial airway devices," she said.

## Lessons learnt

Even with her expertise in this area, Ms Chou had her own fears and faced uncertainties when she and her colleagues encountered their first patient with COVID-19 in the ICU last year.

"Like others on the frontline, the team felt stressed and overwhelmed. It was scary but all of us worked together as a team to support one another," she said.

"The hospital provided us with adequate personal protective equipment (PPE) so I was not worried about my safety. My worry was how and whether we could help the patient, as we have never had such cases before. It is also much more difficult to care for patients while in full PPE."

Ms Chou said that the team brainstormed ways to care for critically ill patients, and subsequently manage the gradual process of weaning them off the ventilators to restore their ability to breathe on their own.

This experience offered her invaluable insights into managing severe lung disease. What she found particularly striking was the devastating impact the coronavirus had on the respiratory system and how quickly patients with COVID-19 could deteriorate, compared to those suffering from other lung conditions.

"I have never seen such severe lung conditions before. I learnt a lot from the doctors managing these patients. We actively participate in clinical decisions by ensuring proper provision of ventilator use and exercise independent judgment in providing care to our patients," she added.

## Overcoming challenges

Inspired by her sister, who is a nurse, Ms Chou decided to become a respiratory therapist although she was not familiar with the profession.

"My sister told me how respiratory therapists have helped her a lot in caring for and managing patients in her course of work, especially in emergency situations," she said.

"Never did I imagine that it would be so challenging. I did not think I would sometimes have

»»» Since the onset of the COVID-19 pandemic, many frontline healthcare workers, including respiratory therapists like Ms Chou Sin-Yi, continue to tirelessly support critically ill patients.



Some of the patients are unable to respond to us when we first treat them. It is amazing to see someone, who was so critically ill, doing so well a few weeks later.



Ms Chou Sin-Yi  
Respiratory Therapist, Sengkang General Hospital

to witness a patient's heart rate falling to zero."

Despite having been on the job for close to seven years, being by her patients' side when at their dying breath still affects Ms Chou to a great extent. "I feel sad, especially when I see family members devastated from the loss," she said.

Still, Ms Chou finds her work fulfilling in many ways, particularly when patients recover. "Some of the patients are unable to respond to us when we first treat them. It is amazing to see someone, who was so critically ill earlier, doing so well a few weeks later."

Ms Chou was once involved in a case where a patient was in a life-threatening state due to severe bleeding in the lungs and respiratory tract. The healthcare team spent several hours to resolve the critical issue successfully.

"It is difficult work, but such incidents inspire and drive me to continue being a respiratory therapist, and to save lives," she said.

To those considering the profession, Ms Chou is candid about how fast-paced and challenging it can get. However, there is never a dull moment at work, and those who wish to make a difference in patients' lives will find it hugely rewarding.

"If you like a different challenge every day, you will love this job," she said.

Away from the sounds of the breathing machines that she is so well acquainted with, Ms Chou cherishes the quiet moments. On her days off, she likes to visit the park alone, armed with a camera to take photographs of nature. She also recently picked up cycling and enjoys going on long rides.

# Continuous improvement

Dr Chow Mun Hong is resolute in providing better and safer patient care.

by Thava Rani

When he witnessed the beauty of coral reefs during one of his diving trips many years ago, Dr Chow Mun Hong, had an epiphany that continues to shape his outlook today.

"The corals are our heritage and legacy. Likewise, we should appreciate what we have inherited, and must be mindful to leave things in a better state for future generations," said Dr Chow, Senior Consultant and Director, Quality Management Department, SingHealth Polyclinics (SHP).

This philosophy remains his guiding principle to support healthcare professionals in carrying out their work more effectively and efficiently — all in the interest of better and safer patient care.

"We have highly educated, dedicated professionals striving to provide good care. We must design and improve the systems that enable our people to do good work. Our patients trust us and we honour that trust by working relentlessly to improve," said Dr Chow.

Dr Chow and his team from the SHP Quality Management Department play a critical role in ensuring that the enduring commitment to quality is supported organisationally and remains integral to the core mission of SHP. They work with partners to develop systems, improve processes, and train other healthcare workers so that continual improvement is imbibed in the SHP culture.

For his relentless efforts at SHP and beyond, he was presented the National Outstanding Clinical Quality Champion Award last year, a prestigious recognition of the efforts of outstanding clinicians, clinician scientists and other healthcare professionals in advancing healthcare, improving the standards of patient safety, and driving research and education.

But Dr Chow is reluctant to



We must design and improve the systems that enable our people to do good work.

**Dr Chow Mun Hong**  
Senior Consultant and  
Director, Quality  
Management Department,  
SingHealth Polyclinics

take all the credit. "I may have started some conversations and implemented some initiatives, but the contributions came from so many people. No single person could have done it alone," he said.

## How it all started

Taking patient care to a higher level was a core commitment from SHP's early years. Dr Chow founded the Quality Management Department in 2006 to bring together existing initiatives and to develop a framework that can enable the whole organisation to maintain high standards and continually improve.

"That way, quality becomes an organisational capability rather than just an individual commitment or effort," Dr Chow said.

It was a learning experience for him, too. "I knew much less 15 years ago. We learnt along the

way, through the efforts of many different people," he added.

His fellowship with Kaiser Permanente, a leading integrated healthcare system in the United States, allowed him to view care delivery from a systems perspective. He saw the potential of certain concepts from the Chronic Care Model and Population Care Management, and went on to redesign the care delivery system at SHP.

## Making a difference

One of Dr Chow's biggest contributions is an integrated Quality framework that includes Clinical Governance, Quality Assurance, Patient Safety, Patient Experience, Enterprise Risk Management, Improvement, and Culture and Capacity Building.

"These programmes often have overlapping features, and by bringing them together, we minimise duplication, and leverage their respective strengths," said Dr Chow.

He also spearheaded the Quality and Safety training framework so that everyone in the SHP family is aligned with the organisational values and expectations, such as interdisciplinary collaboration.

"The goal is to prepare healthcare workers to work effectively in teams and be equipped with the right skills. Together, we can learn and improve with colleagues from different disciplines," said Dr Chow.

Dr Chow's work in redesigning the care delivery system also resulted in reducing the physician's work load.

A chance sighting of a coin-operated machine that measured one's Body Mass Index (BMI) got ideas flowing.

"Instead of having doctors perform tasks such as measuring patients' blood pressure (BP), we modified the BMI machine and added an electronic BP device to set up a health monitoring station so that patients can take the measurements with the help of Patient Service Associates before their consultations," said Dr Chow.

The system was also enhanced to enable a risk score and treatment target for each patient to be calculated, which guides clinical decisions during consultations.

Dr Chow has also been steering patient care toward a proactive — instead of reactive — approach. For example, new information systems now enable doctors to generate patient registries to proactively monitor patients' conditions and identify those who may need additional follow-ups. The SHP team is also developing other ways to engage patients, such as through video and teleconsultations to help patients stay well and active with more support.

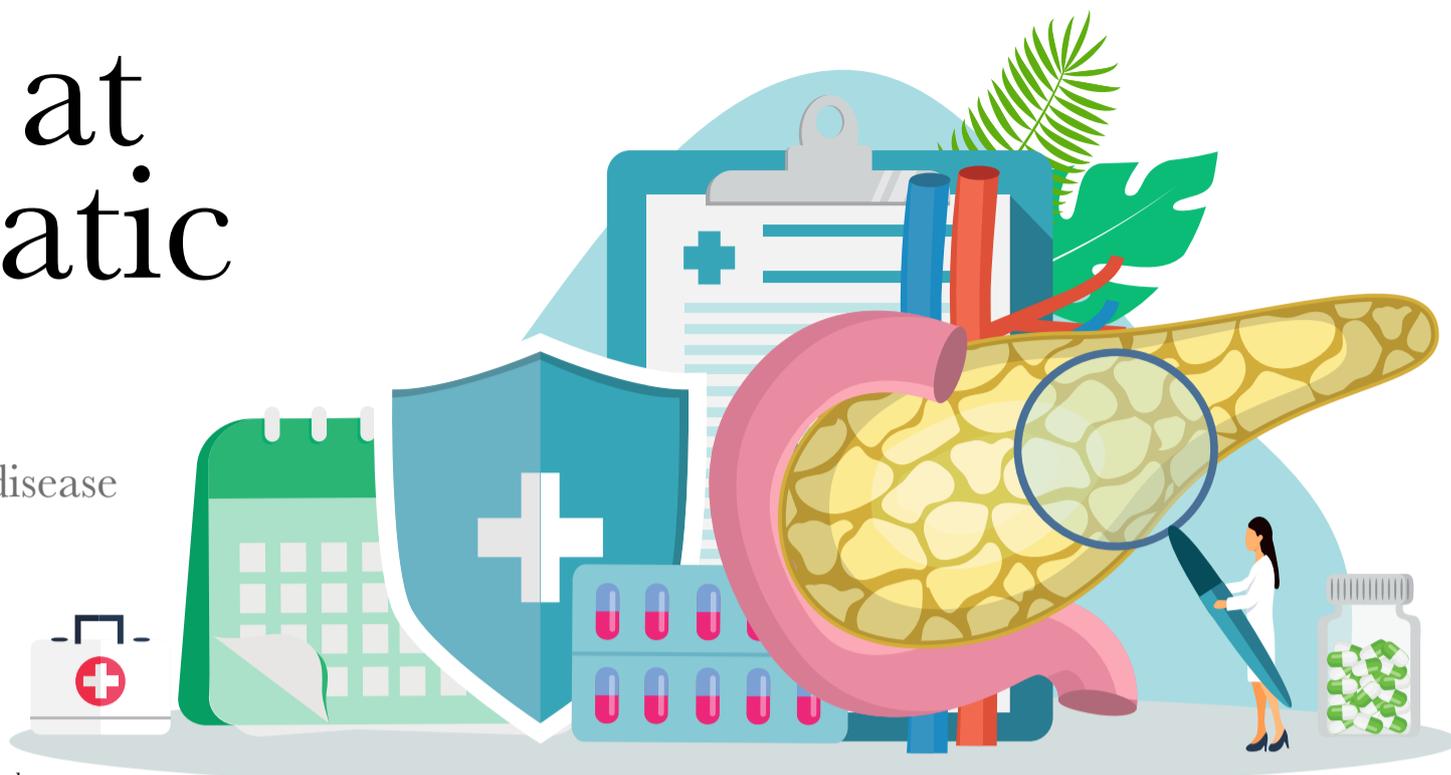
Today, thanks to Dr Chow's efforts, multidisciplinary teams are focused on continual improvement through system redesign so that ultimately, patients benefit from more accessible and timely care.

»»» One of Dr Chow Mun Hong's most impactful work includes redesigning the care delivery system to ease the load of physicians and improve patient experience.

# A look at pancreatic cancer

Learn more about this disease as the World Pancreatic Cancer Day takes place in November.

Information provided by **Dr Koh Ye Xin**, Consultant, Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital

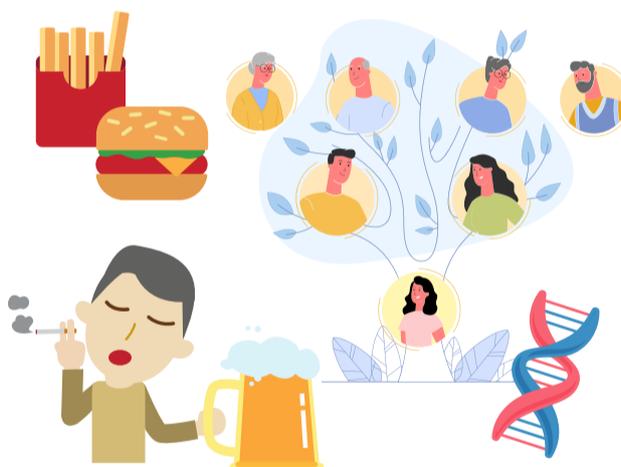


## Pancreas: facts and figures

- Flat pear-shaped spongy organ, about **15-25cm long**
- Lies between the stomach, liver and intestines
- Has **2 types of glands**:
  - ▶ Endocrine glands that produce insulin and other hormones to regulate blood sugar levels
  - ▶ Exocrine glands that produce enzymes, which drain through ducts into the small intestine to help with digestion
- Pancreatic cancer **accounts for less than 2% of cancers diagnosed** in Singapore
- **6th and 7th most frequent cause of cancer deaths** in Singaporean males and females respectively

## Who is at risk?

- Smokers
- Between 50 and 80 years old
- Family history of cancer
- Consume excessive amounts of alcohol and fatty food, though this is not a proven risk factor



## Getting treated

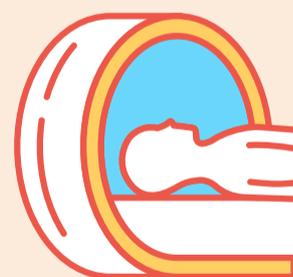
### SURGERY

- ▶ Treatment of choice, depending on location and stage of the cancer
- ▶ Removes some or all of the pancreas
- ▶ Needs to be done in early stages of the disease (usually only about one out of five patients are eligible); in the remaining patients, about 20-30 per cent can be made eligible for surgery via neoadjuvant chemotherapy (pre-surgery chemotherapy to shrink tumours, and make the surgery less invasive and more effective)



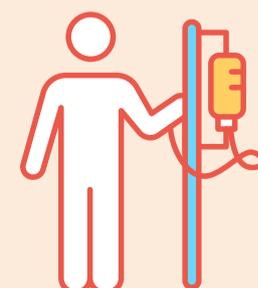
### RADIOTHERAPY

- ▶ When cancer has spread outside the pancreas.
- ▶ Relieves pain, and occasionally jaundice
- ▶ Used after surgery to reduce risk of recurrence



### CHEMOTHERAPY

- ▶ Used with radiotherapy to boost effectiveness
- ▶ Used in advanced stages to relieve pain

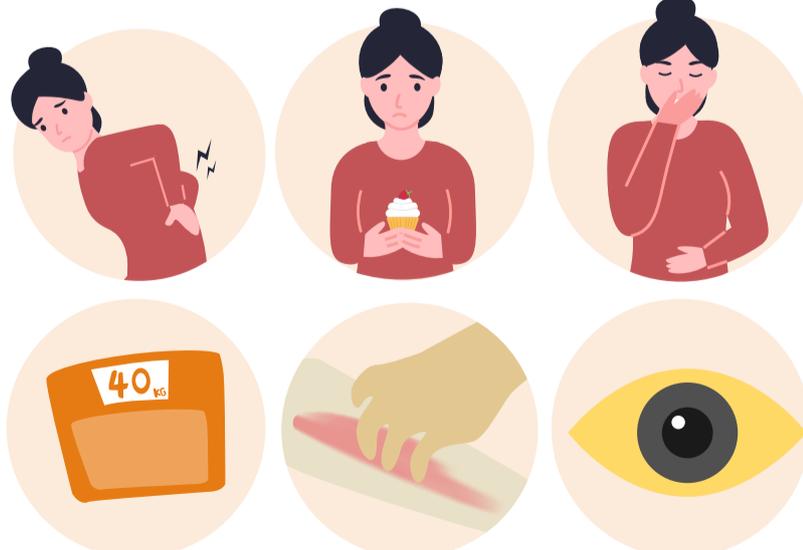


## Pancreatic cancer

- Pancreatic ductal adenocarcinoma — most common type that occurs in the cells lining the ducts, aggressive in nature; prognosis is usually poor
- Rarer forms of pancreatic cancer can occur in the endocrine glands

### SYMPTOMS:

- ▶ Usually vague and non-specific
- ▶ Appear when cancer has spread to other organs (cancer is seldom detected in its early stages)
- ▶ In advanced stage, patients may experience abdominal pain that radiates to the back, loss of appetite or unintended weight loss, nausea, itching, yellowing of the whites in the eye (jaundice)



# The truth about intermittent fasting

While this trendy diet may help shed the kilos, it is not suitable for everyone.

by Thava Rani

**I**ntermittent fasting has been a trend among people trying to lose weight. Variations of this diet have been promoted by celebrities, further boosting its popularity. But does intermittent fasting really work? Is it necessary to consult a professional before adopting this diet?

"Intermittent fasting, when practised using the principles of a healthy and balanced diet, can lead to weight loss," said Ms Alexis Ng Wei Leng, Dietitian, Department of Dietetics, Sengkang General Hospital (SKH).

Dietitians at SKH, however, do not routinely recommend that patients adopt intermittent fasting, preferring instead to encourage regular, balanced meals with daily caloric reduction for weight loss.

"This means there is no skipping of meals. It is safer and more sustainable in the long run. But if patients strongly desire to try intermittent fasting, we guide them so that they can do so safely," said Ms Ng.

## What it entails

Typically, intermittent fasting involves periods of intentional restriction of calories (or "fasting") interspersed with periods of ad libitum feeding (or "feeding window"), where caloric intake is not calculated.

There are a few regimens that are widely practised. The most common ones are the 16:8 or 20:4 diets, which are based on

the number of hours that fasting and feeding occurs. For instance, in the 16:8 diet, individuals fast for 16 hours and eat during the remaining eight hours. While fasting, they should hydrate themselves with calorie-free fluids, such as water, unsweetened green tea, or black coffee.

"It can be difficult to maintain this diet effectively because after long hours of fasting, one gets hungry and may lose inhibition of what he or she eats, and ends up unknowingly eating more than what he or she normally would," Ms Ng said.

Another method is alternate-day fasting, where individuals fast for one day and eat normally the next day, repeating the pattern for the duration of the diet. On the day of fasting, they can consume up to 25 per cent of their caloric requirements.

The 5:2 diet is another popular method, where individuals fast for two days of the week — either on consecutive or non-consecutive days — and eat normally during the other five days. On the days they fast, they can consume a maximum of 500kcal per day.

"The alternate-day fasting and 5:2 methods require individuals to be well-versed in calorie counting," said Ms Ng.

Apart from helping to shed kilos, some studies have shown that intermittent fasting improves blood test results, such as fasting glucose, cholesterol levels, and even blood

» Without professional guidance, intermittent fasting could cause more harm than good, says Dietitian Alexis Ng.



## Tips for intermittent fasting

While embarking on your intermittent fasting journey under close monitoring with your healthcare professional, here are some pointers for you:

### 1 Balance is key

- Maintain a balanced diet during fasting days and feeding windows.
- Include food from all food groups to prevent nutrient deficiencies, weakened immune system, and poor wound healing.

### 2 Quality, not quantity

- Do not eat excessively during non-fasting days and during feeding windows.
- Limit intake of food with high-fat and refined-sugar content.
- Choose healthier cooking options such as stir frying, steaming, baking and roasting.

### 3 Mindful eating

- Avoid snacking between meals.
- Take time to savour each bite and chew your food slowly instead of gobbling down your meal.

### 4 Stay hydrated

- Drink plenty of zero-calorie fluids during fasting and feeding windows to avoid dehydration and headache.
- Do not mistake thirst for hunger.

### 5 Keep your energy level in check

- Fasting may affect hormone levels, leading to increased irritability, anxiety and stress.
- Fasting may lead to lethargy, which is dangerous especially if driving or operating machinery.

reduction with regular, balance meals. Nevertheless, anyone who wishes to embark on intermittent fasting is advised to consult a physician or dietitian to evaluate his or her suitability. We can then provide an appropriate diet plan, and monitor him or her through regular follow-ups throughout the period," said Ms Ng.

"Intermittent fasting has not been shown to be superior in weight loss effectiveness when compared against daily caloric

# Eye injections can save vision

Intravitreal jabs offer efficacious treatment and hope for patients with various retinal conditions.

by Suki Lor

**C**an eye injections stave off blindness or prevent further vision loss due to retinal conditions?

A study by the Singapore National Eye Centre (SNEC) published in the *Ophthalmology Retina* journal in late 2019 found that injections of anti-VEGF (vascular endothelial growth factor) drugs could arrest vision decline in about 95 per cent of patients with exudative age-related macular degeneration (AMD). The anti-VEGF drugs block the growth of abnormal blood vessels in the eye that affect vision.

"Anti-VEGF injections, the most common among intravitreal (IVT) jabs, or a shot of medicine into the eye, are a game changer in treating exudative AMD," said Dr Shaun Sim, Associate Consultant, Cataract and Comprehensive Ophthalmology Department, SNEC.

Exudative AMD is an irreversible condition that occurs when new blood vessels grow from beneath the macula, the central area of the retina, which is the light-sensing nerve tissue at the back of the eye. It is one of the leading causes of blindness in people aged 50 and above.

In light of this, SNEC is exploring ways to improve awareness of the effectiveness of IVT injections, and to make it less burdensome to get these jabs so that patients adhere to the treatment regime.

»»» Intravitreal injections are a quick and effective way of administering drugs to treat eye conditions with minimal pain and side effects, says Dr Shaun Sim.

Before anti-VEGF drugs became available, laser was used to treat exudative AMD, but outcomes were not favourable for patients. "With the advent of anti-VEGF injections, we are able to preserve vision and maintain stability of their condition," Dr Sim said.

Patients need to return regularly for subsequent injections of the anti-VEGF drugs under a "treat and extend" regime, in which the intervals between jabs are extended depending on their responses to the treatment.

Initially, the injections are administered once a month for three months. "If the patient's condition is stable after the initial loading phase, we move on to an extension phase, where the interval between each jab is lengthened by either two or four weeks," said Dr Sim.

A significant number of patients have had successful treatment extensions of up to 12 to 16 weeks, and the results for exudative AMD have been positive. "More than 70 to 80 per cent of our patients are able



»»» At SNEC, specially trained nurses administer the intravitreal injection on patients.

to improve their vision with anti-VEGF injections across a two-year period," Dr Sim added.

The same treatment process applies for other conditions treated with anti-VEGF injections, such as retinal vein occlusion (a blockage of the small veins that carry blood away from the retina) and diabetic retinopathy (an eye disease that affects people with diabetes). These two conditions may also be treated with intravitreal steroids.

IVT injections of antibiotics, antifungals or antivirals are also given to certain patients with eye infections.

In 2020, SNEC carried out nearly 19,000 IVT injections, a significant increase from approximately 5,000 in 2013. "Our patients are getting more and more aware of their condition, thanks to increased screening and improved health literacy," said Dr Sim.

## Minimal pain involved

The thought of getting an injection straight into the eyeball can be harrowing and having to return for frequent treatments can also be daunting. However, Dr Sim said that the patient experiences minimal pain and that the entire process is quick — approximately five to 10 minutes.

During the process, the eye is first numbed with anaesthetic eye drops. The eye and eyelid are

then cleaned to remove bacteria. An eyelid speculum is used to keep the eye open. The patient is then directed to look away from the needle while the injection is administered at the sclera (white part of the eyeball).

Severe side effects, if any at all, are rare. Some patients may experience dry eyes and discomfort. This can be simply relieved with eye drops, or may even resolve on its own. Others may encounter a tiny pinpoint blood clot on the surface of the eye at the needle entry point, but this will usually heal within one to two weeks. Infections are very rare, said Dr Sim.

## Increased accessibility

A patient education programme is available at SNEC for patients to learn more about IVT injections and other information related to the procedure. SNEC has also produced a new set of printed brochures with improved legibility by using larger fonts and adding more colours. These brochures are placed in a bag printed with an Amsler chart. The chart helps patients identify any abnormalities in their vision should they see distortions in the square-shaped grid.

SNEC is currently working with centres internationally to conduct trials to assess patients' response to newer anti-VEGF drugs that offer durable visual outcomes with fewer injections.

# Are we born to fear?

Fears can protect one from danger, but they can also grow out of control. Phobias can be treated.

by Audrina Gan

When she returned to Singapore from Australia to visit her elderly parents during the COVID-19 pandemic, Anna\* had to be quarantined for 14 days in a hotel. By the end of the first week, she started feeling a sense of panic rising from within her. She had an extremely fast heartbeat, a tightness in her chest, and intense anxiety.

Anna was experiencing a phobia, or an intense and irrational fear. Her hotel room was nice, and she was able to communicate with her family via video and audio calls, but the lack of human contact and fresh air, she said, just got to her.

Many people around the world reported similar symptoms during their time in quarantine. That sense of fear during quarantine may be unusual for them, but phobias in general are not. Associate Professor Leslie Lim, Senior Consultant, Department of Psychiatry, Singapore General Hospital (SGH), cites the *Diagnostic and Statistical Manual of Mental Disorders*, which noted

that nearly three per cent of the world's population suffer from at least one of the 100 most common phobias.

They include social phobia, fear of heights, and fear of enclosed spaces. Some phobias are inborn, such as the fear of loud noises and fear of falling, which serve to keep young children from danger.

Others arise from traumatic events. "For instance, if you were trapped in a train or a tunnel, it may cause you to develop a fear of enclosed spaces," said Prof Lim.

People learn to fear through what he calls conditioning or faulty learning. For example, a person trapped in a lift without air conditioning might feel suffocated and become increasingly anxious if he lets irrational thoughts take over. Instead of remaining calm and waiting to be rescued, he thinks of the what-ifs, like "What if the lift cables snap?". His fear grows, as a result.

A person may develop a fear of dogs after an over-friendly dog jumps on him. If he does not

deal with this phobia, he may start fearing other animals, such as cats. Confronting the fear is the best way to deal it. "Expose yourself to the phobia for at least one to one and a half hours, and the fear will gradually diminish on its own," Prof Lim said.

Those who are not able to overcome their fears on their own can seek medical treatment. Phobias can be treated successfully with counselling and cognitive behavioural therapy, said Prof Lim.

*\*name and some details have been changed*

»»» Counselling and cognitive behavioural therapy are effective treatment methods to overcome phobias, says Associate Professor Leslie Lim.



## Types of phobia

### • Agoraphobia

#### What is it?

A fear of being trapped in an enclosed spaces, such as a lift, train station, or in an MRT train entering the tunnel; and being stuck in a traffic jam.

#### How to overcome it?

Take the lift with a companion, who can wait on a lower floor as the fear eases. Gradually increase the duration alone.

### • Social phobia

#### What is it?

A fear of social situations where the person has to speak or sing in front of others, and is fearful of being judged negatively.

#### How to overcome it?

Speak to a small group or by preparing a draft script. The audience size is gradually increased, and the person learns to maintain eye contact, perform role-play, and make small talk.

### • Simple phobia

#### What is it?

A fear of heights, water, animals, insects, lightning, or thunder.

#### How to overcome it?

Exposure to photos or videos of friendly dogs and observe others stroking the dog.

### • Rare phobia

#### What is it?

Taijin-Kyofu-Sho is a Japanese culture-specific fear of offending others by their bodies or appearances, such as emitting body odour. This phobia has been reported in the US, Europe and Australia.

#### How to overcome it?

Deep breathing and progressive muscle relaxation are techniques that can help reduce feelings of anxiety in social situations. Joining a support group or attending group therapy are good ways to practise social skills in a safe setting. Sufficient sleep, a healthy diet, and regular exercise are important for overall well-being and keeping anxiety at bay.





# Blue Pea Lemongrass Jelly

(4 servings)

by Chef Judy Koh

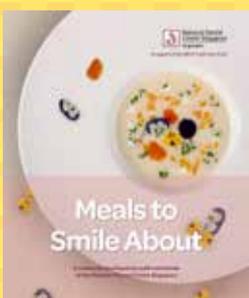
Founder and Executive Chef, Creative Culinaire The School and Caffè Pralet

## Ingredients

- 490g water
- 2 pc lemongrass, bruised
- 50g rock sugar
- 20g gelatin powder
- 5 pc pandan leaves, torn and tied in a knot
- 8 pc wild blue pea flowers, washed with petals separated

## FOR GARNISH

Lemongrass strips, raspberries, wild blue pea flowers



Adapted from *Meals to Smile About*, National Dental Centre Singapore's (NDCS) first recipe book for patients requiring soft foods after dental treatment, and who may have chewing and eating difficulties. It features over 30 nutritious recipes, with contributions from staff, patients, caregivers, and friends of NDCS, including renowned chefs like Eric Teo and Malcolm Lee. Visit [www.ndcs.com.sg/giving/Pages/Meals-to-Smile-About.aspx](http://www.ndcs.com.sg/giving/Pages/Meals-to-Smile-About.aspx) to find out more.



## USEFUL TIPS

Wait 10 to 15 minutes for the gelatin powder to combine well with the water before moving it.



Preparation time: **1 hour**

## Method

1. Mix the gelatin powder with 90g of water. Set aside for 15 min until a spongy texture is achieved.
2. Place the remaining 400g of water, rock sugar, pandan leaves and lemongrass in a saucepan. Boil for about 3 min until fragrant. Strain and return to heat.
3. Add the gelatin mixture and stir until it is dissolved.
4. Strain and add wild blue pea flowers.
5. Pour into a 7 inch square tray and leave to set.
6. When cooled, place in refrigerator to let it set further.
7. Cut the jelly into diamond shapes.
8. When ready to serve, arrange into a large flower pattern, and garnish with lemongrass strips, raspberry and wild blue pea flower.

# Easy on the ears

Is the COVID-driven tech disruption damaging your ears? Find out how you can keep them healthy.

by Annie Tan

**H**earing loss may not be a common symptom of the COVID-19 disease. However, as people stay and work at home during the pandemic, and make greater use of personal audio and video devices, hearing-related problems could well become associated with the condition.

“Excessive exposure to sound energy damages the delicate outer and even the inner hair cells of the cochlea. Prolonged exposure results in permanent hearing loss,” said Dr Joyce Tang Zhi En, Associate Consultant, Department

of Otorhinolaryngology – Head and Neck Surgery, Singapore General Hospital (SGH).

To illustrate the damage that can occur from listening to audio devices, consider that the output of personal audio devices can range from 75dB (decibel) to as high as 120dB. Occupational noise exposure, which sets a rough minimum standard for people working in a noisy environment, considers exposure to 85dB over eight hours a day hazardous to hearing. For workers, regular breaks from their noisy workplace are essential.

There are no data to show whether the use of personal devices has increased since the start of the pandemic, but Dr Tang said that tech use was already steadily rising pre-pandemic. In the United States, headphone use rose 75 per cent between 1990 and 2005, while hearing loss among teens there increased to 5.3 per cent in 2006 from 3.5 per cent in 1994. The 2010 Singapore National Health Survey, meanwhile, showed that nearly 13 per cent of 18 to 29-year-olds have mild hearing loss in at least three of four tested frequencies in at least one ear, said Dr Tang.

The World Health Organization (WHO) said adults should aim for sound levels of less than 80dB over 40 hours a week, and 75dB over 40 hours for children. Studies found that between six and 25 per cent of listeners are exposed to volumes of more than 90dB, with five per cent going beyond the 100dB mark.

A 2014 Singapore study involving 2,000 tertiary students found that 16 per cent of participants listened to portable music players at sound levels of more than 85dB for eight hours, putting themselves at risk of permanent noise-induced hearing loss.

Children, too, are increasingly exposed to technology at a younger age, with damage to noise appearing later in life. “As children’s hearing is more sensitive, it is imperative to ensure they develop healthy habits when using devices,” said Dr Tang, adding that the WHO estimated half of 12 to 35-year-olds to be at risk of hearing loss due to exposure to unsafe levels of sounds from personal audio devices.



» It is important to cultivate from young healthy habits when using personal audio devices to prevent noise-induced hearing loss, says Dr Joyce Tang.

## Earphones or headphones?

Headphones are generally better for ear health than earphones. Sounds from earphones range between 80dB and 120dB, and if inserted deep into the ear canal, the level can reach the upper limit. As headphones are farther from the ear canal, they deliver sound that is as much as 9dB lower.

Noise-cancelling earphones or headphones allow listening at softer volumes even in noisy environments like trains. For children, special headsets allow volume to be limited.

Still, the volume and duration of sound exposure are important. “Most guidelines recommend limiting sound exposure to 60 per cent of maximum volume for up to 60 minutes a day. As a guide, while on headphones, you should still be able to hear someone talking to you at arm’s length,” said Dr Joyce Tang, Associate Consultant, Department of Otorhinolaryngology – Head and Neck Surgery, SGH.

Much like eye breaks from computer work, it is important to schedule regular audio breaks of at least 15 to 20 minutes. “This helps the delicate cochlear hair cells recover from the oxidative stress of loud sounds, and reduces the risk of hearing loss,” she added.



## Deafness and dementia

Sensory dysfunction is closely linked with cognitive decline, with hearing loss having one of the most important associations with dementia. This is because the sensory system, including sight, hearing and smell, has an intricate relationship with cognitive function. Our eyes, ears and nose are closely linked with brain via the neural network, said Dr Vu Tai Anh, MD-PhD student, Duke-NUS Medical School.

“Brain stimulation from our senses is restricted in sensory loss, thereby increasing the risk of cognitive decline. Poor sensory functions may also result in social isolation, in which people may be less willing to leave their house, see friends, and participate in mentally stimulating activities. Limited social interaction, in turn, has been linked with a higher risk of dementia,” he said.



## Q&amp;A

HealthXchange.sg

## Why do I bruise easily?



**Due to my skin allergies, I have been using topical steroid creams to reduce skin inflammation. Sometimes I find unexplained bruises on my body. Could they be caused by my medications? Are they signs of more serious problems?**

Bruising occurs when the tiny blood vessels, or capillaries, within your skin are damaged, and blood seeps into the layers of the skin, causing discoloration. The bruise is red at first, changing colour — to brown, green, yellow — before fading as it heals. Bruises are more visible in fair skin.

People with thinner and more fragile skin, such as the elderly, may be more prone to bruising. Fragile skin can also be caused by the use of steroids, which thins out the skin when applied over a prolonged period.

Patients with blood disorders or “thin blood syndrome” associated with genetic conditions like haemophilia and von Willebrand disease may lack components that help in blood clotting. Hence, their blood is “thinner” and they are more prone to bleeding.

Patients on blood-thinning (anticoagulant) medications like aspirin, warfarin and rivaroxaban, and those with low platelet count — due to transient causes such as dengue fever and other virus infections — will also bruise more easily. Other factors that may increase a person’s tendency to bruise easily include conditions that affect the blood vessel wall, and vasculitis, or inflammation of the blood vessels.

However, the most common cause of bruising is injury. Knocking the shin against a door, for instance, can damage blood vessels, resulting in a bruise. Seek medical help for:



- Very frequent bruising that does not go away
- Bruising that seems more severe than the injury or is not related to any injury
- Bruising that is related to bleeding elsewhere, such as nosebleed and bleeding gums
- Swelling of the joints where there are bruises

**DR CHEONG MAY ANNE**

Associate Consultant, Department of Haematology, Singapore General Hospital, and Associate Consultant, SingHealth Duke-NUS Blood Cancer Centre



## Proper usage of cleaning devices



**Can cleaning devices, such as vacuum cleaners, air conditioners and air purifiers, help mitigate asthma attacks? Or do they cause more harm than good? I understand that using these devices may increase allergen exposure in the household. For example, vacuum cleaners may release dust into the environment.**

In certain patients, pet hairs or dust can trigger an asthma attack. Hence, they are advised to keep the home environment clean.

All vacuum cleaners will emit some dust. It is important to open the windows or ventilate the room that is being cleaned, and to clean the vacuum cleaner after use.

Vacuum cleaners or air purifiers with a HEPA (high-efficiency particulate air) filter are designed to remove a high percentage of pollen, pet dander and particles from the air.

By and large, a vacuum cleaner will clean up more dust than it emits — just remember to perform routine maintenance work and keep these devices in good working condition so that they operate efficiently and not contribute to the problem.

**DR RAJENDRA BARATHI**

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## DID YOU KNOW...

... **that** recruitment of healthy volunteers aged 21 to 65 are underway for the clinical trials of two new COVID-19 vaccines? The early-stage clinical trials will evaluate the vaccines' safety and immune response against the Alpha, Beta, Gamma and Delta variants.

The trials are administered by SingHealth's Investigational Medicine Unit (IMU), which is led by Associate Professor Jenny Low, Senior Consultant, Department of Infectious Diseases, Singapore General Hospital (SGH).

The vaccines were developed by US pharmaceutical firm Arcturus Therapeutics, which co-developed the Lunar-Cov19 vaccine, now called the ARCT-021 vaccine, with Duke-NUS Medical School. The two new vaccines are known as ARCT-154, which targets the D614G spike protein mutation; and ARCT-165, which targets a wider range of mutations.

Participants will be given two doses of any of the three vaccines at a one-month interval. Fully vaccinated participants will only get one dose of any of the three vaccines.

Those interested in participating in the trial can contact IMU at [imu@singhealth.com.sg](mailto:imu@singhealth.com.sg), or call **6323 7544** or **8318 0685**.



... **that** the National Cancer Centre Singapore (NCCS) has launched a clinical trial to examine the use of Traditional Chinese Medicine (TCM) to improve cancer survivors' quality of life?

Cancer survivors may experience cancer-related fatigue, a distressing and persistent sense of physical, emotional and/or cognitive tiredness, which can be a side effect of cancer and/or anti-cancer treatments.

In the HERBAL (Health-related quality of life-intervention in survivors of breast and other cancers experiencing cancer-related fatigue using Traditional Chinese Medicine) trial, participants are prescribed a TCM formula or placebo to evaluate its efficacy in alleviating cancer-related fatigue.

The formula, which comprises a mixture of herbs including astragalus, malt and wolfberry, was developed by HERBAL trial co-investigator Professor Alexandre Chan, Visiting Professor, Oncology Pharmacy, NCCS, in consultation with TCM physicians from Singapore Thong Chai Medical Institution (STCMI).

The HERBAL trial is supported by the Ministry of Health's Traditional Chinese Medicine Research Grant, in collaboration with STCMI.

If you are keen to participate in the HERBAL trial, please contact the research coordinators at [edmund.wang.c.a@nccs.com.sg](mailto:edmund.wang.c.a@nccs.com.sg) or call **8196 0402**.



Photo: Singapore Thong Chai Medical Institution

Some of the herbs used in the TCM formula in the HERBAL trial conducted at the National Cancer Centre Singapore.



Photo: Vernon Wong

... **that** patients who visit SGH's Department of Emergency Medicine (DEM) are not seen in the order of registration but by the urgency of their condition?

When a patient visits or is ferried to the DEM, he is first seen by a triage nurse to assess his symptoms and the urgency of his condition. Patients with minor emergencies or non-emergencies can expect to wait some time to see a doctor, as patients with serious or critical conditions are given priority and seen by doctors immediately.

Waiting times for consultation and diagnostic tests, such as scans, depend on various factors, including the time of the day, availability of facilities, patients' conditions, and even the time of year — the DEM is typically busier during festive seasons when general practitioner (GP) clinics are closed.

Every month, SGH's DEM sees more than 10,000 patients, of which about 30 per cent have minor emergencies like lacerations and abscesses that can be treated by GPs.

Other conditions that GPs are able to treat include upper respiratory infections or abdominal conditions, such as gastroenteritis, reflux and gastritis. These are considered non-urgent in nature, compared to conditions like heart attack, heart failure, respiratory failure, renal failure, stroke, sepsis, appendicitis, gastrointestinal bleeding, traffic accidents and serious injuries, and oncological-related emergencies.

During this period, patients seeking emergency care must also undergo COVID-19 screening before being seen by the triage nurse.

For more information, go to [www.sgh.com.sg/patient-care/visiting-specialist/emergency-care-singapore-general-hospital](http://www.sgh.com.sg/patient-care/visiting-specialist/emergency-care-singapore-general-hospital).



... **that** selected patients in SingHealth are eligible for "green lane" referrals?

Teams from SGH and Bright Vision Hospital first established this for more seamless inter-institution referrals in 2019. With green lanes, smoother workflows for such referrals have been implemented, and the transition of care for patients with certain conditions, such as hip fracture and stroke, has improved.

This initiative has since been expanded to allow the transition of patients from Sengkang General Hospital to Sengkang Community Hospital, and from SGH to Outram Community Hospital.

The average waiting time for patients from referral to admission is now reduced, and the overall length of hospital stay is shorter, leading to bundled care savings for patients.

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† IQVIA, Global Market Insights, Category 'R5C (Expectorants)', MAT 12/2019 (units)



## 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 **Viartril-S reduces the risk of Total Knee Replacement surgery by 57%.**

*What about the glucosamine brand that you are taking?*

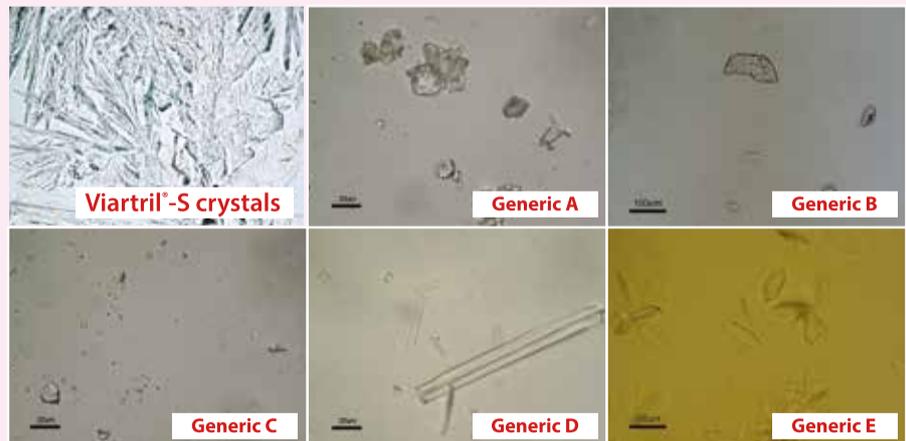
## Viartril-S®

The Patented Prescription-Grade Crystalline Glucosamine Sulphate for Joint Health<sup>1,2</sup>

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.



The glucosamine brand used in  
all successful clinical trials<sup>3</sup>

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